

WINTER 1984



ELECTRIC PERSPECTIVES





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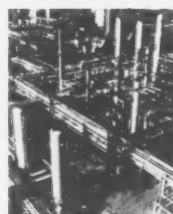
ELECTRIC PERSPECTIVES

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INDUSTRIAL ELECTRIFICATION— WHAT WILL IT DO TO DEMAND?

By John Druke

John Druke is a Kennedy Fellow at the Kennedy School of Government, Harvard University.

From 1960 to 1982, U.S. industry cut the amount of energy it used per unit of output produced by a whopping 41 percent. Over the same period, however, its electricity use per unit of output grew by about 10 percent, even though its share of total electricity consumption was shrinking dramatically—from 51 percent in 1960 to 37 percent in 1982.

What do these trends mean—what are the underlying factors responsible for them and what do they tell us about future industrial demand? As part of an ongoing effort to answer these questions, this past summer Edison Electric Institute's Energy Modeling and Economic Research Department undertook a study of industrial electrification focusing on the relationship between electricity demand and electrotechnologies in the six industrial groups that consume the most energy. The following report is based on that study.

The impetus for industrial electrification is simple: many innovative electricity-based technologies have been developed that are intrinsically less costly than the processes they replace. The new technologies reduce costs by capitalizing on electricity's unique physical properties. For example, because electricity is an "organized" form of energy, it can interact directly with substances of a specific quality at the molecular level. It also can exert forces on matter through a distance, allowing friction to be minimized in an electric motor, for example, and for practical purposes it can be considered massless.

These unique characteristics give rise to other unique and attractive qualities: electricity can heat substances to tens of thou-

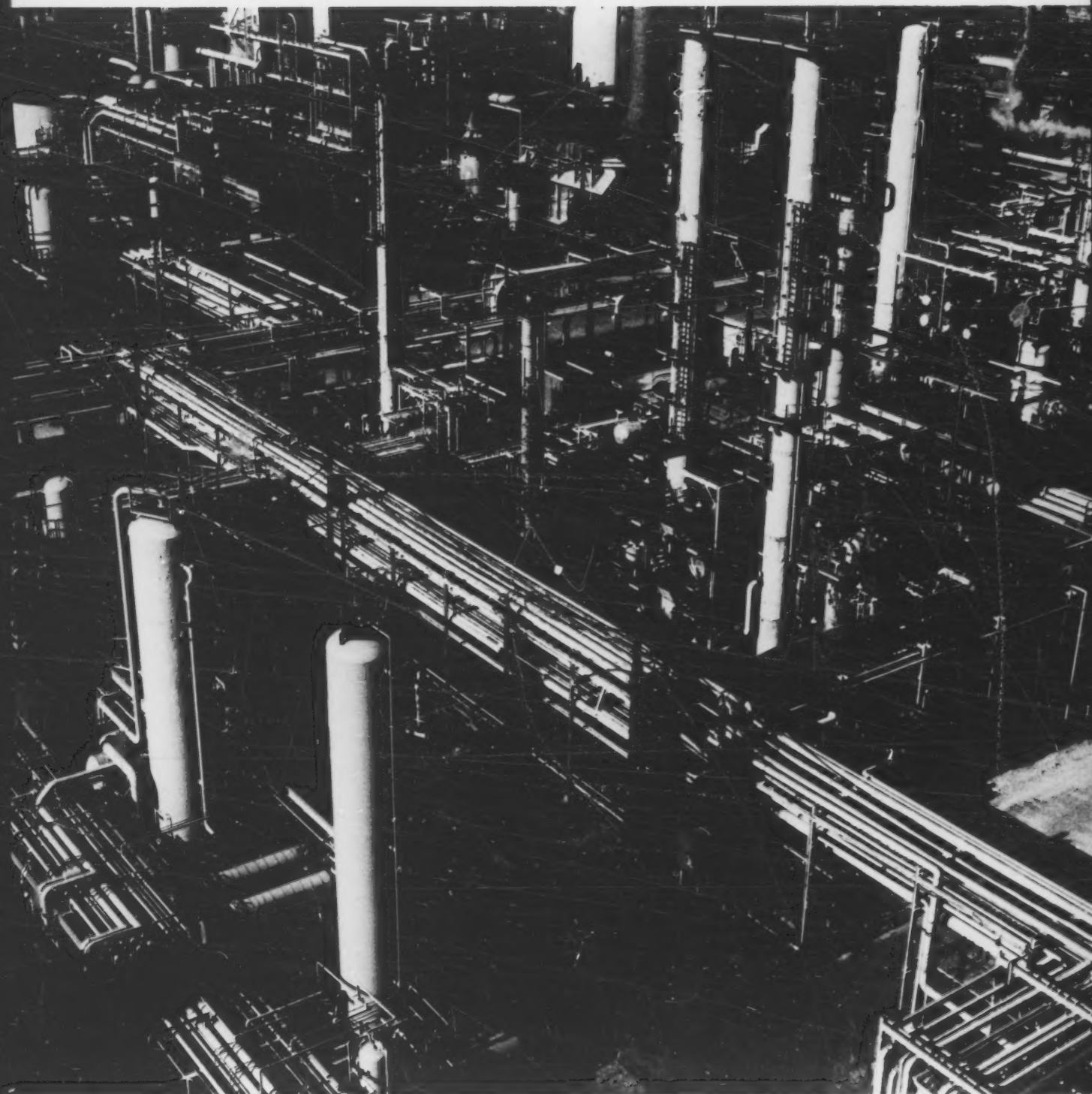
sands of degrees; it can deposit energy at every point in a given volume of matter, unlike combustion gases, which can deposit energy only at the surface of a material; it allows the precise control of electrical processes—exact amounts of electrical energy can be used and what is used can be precisely applied.

All of these qualities have important economic implications when applied to production processes. The processes can be accelerated, and they are generally cleaner. The physical size of production equipment can be reduced. The precise controllability of electricity allows the use of exact amounts of energy, materials, and time. As a result, potential costs due to all inputs—energy, materials, labor, and capital—can be reduced.

Aggregate Trends

As shown in Figure 1, two industries, primary metals and chemicals, dominate the consumption of electricity in the manufacturing sectors. Numerous other industries have secondary consumption levels: food; paper; petroleum; stone, clay, and glass; machinery; electrical equipment; and transportation equipment.

This distribution alone, however, tells us little about where new electricity-based technologies might be adopted most advantageously. For those signs we must look at the total energy used by the various industries. Figure 2 shows that six industrial groups dominate the consumption of fuels: food; paper; chemicals; petroleum; stone, clay, and glass; and primary



The chemicals industry, above, along with primary metals, dominates the

consumption of electricity in the manufacturing sectors.

**... new technologies reduce costs by capitalizing on
electricity's physical properties.**

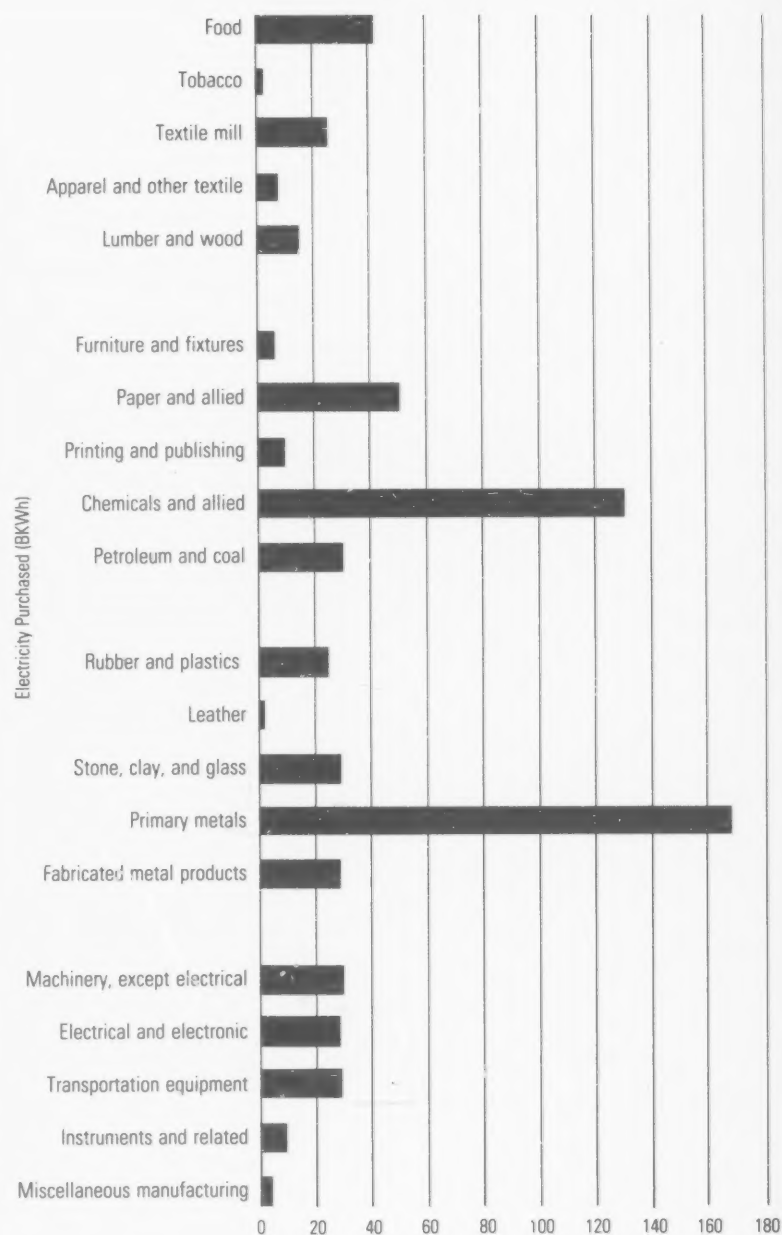
metals. Moreover, the major portion of these fuels is consumed to provide heat for manufacturing processes, an area where the unique qualities of electricity can be used to gain an economic advantage.

Focusing even closer on the process heat requirements of each of these groups suggests which of them have the most to gain from greater electrification. Table 1 shows what percentage of each industry's requirements is for low, intermediate, and high temperatures.¹ Nearly all of the energy consumed in the food industry, for instance, is used at temperatures beneath 350°C. At the other end of the spectrum, primary metals uses the greater portion of its energy at temperatures higher than 1000°C. Those industries requiring the higher temperatures should have the greatest incentive to use technologies that take advantage of electricity's ability to heat materials to higher temperatures faster and more efficiently than other fuels.

An examination of the 1960-82 trends in electric intensity² for the six industries reveals the extent to which this expectation is fulfilled. Food and chemicals, both of which use over 90 percent of their energy at low temperatures, showed consistent declines in electricity intensity, food since 1975 and chemicals since 1960. The electric intensity—in primary metals and petroleum, both of which use the greatest portion of their energy at intermediate or high temperatures, increased steadily. In stone, clay, and glass and in pa-

Figure 1

Purchased Electricity by Industry Group, 1981

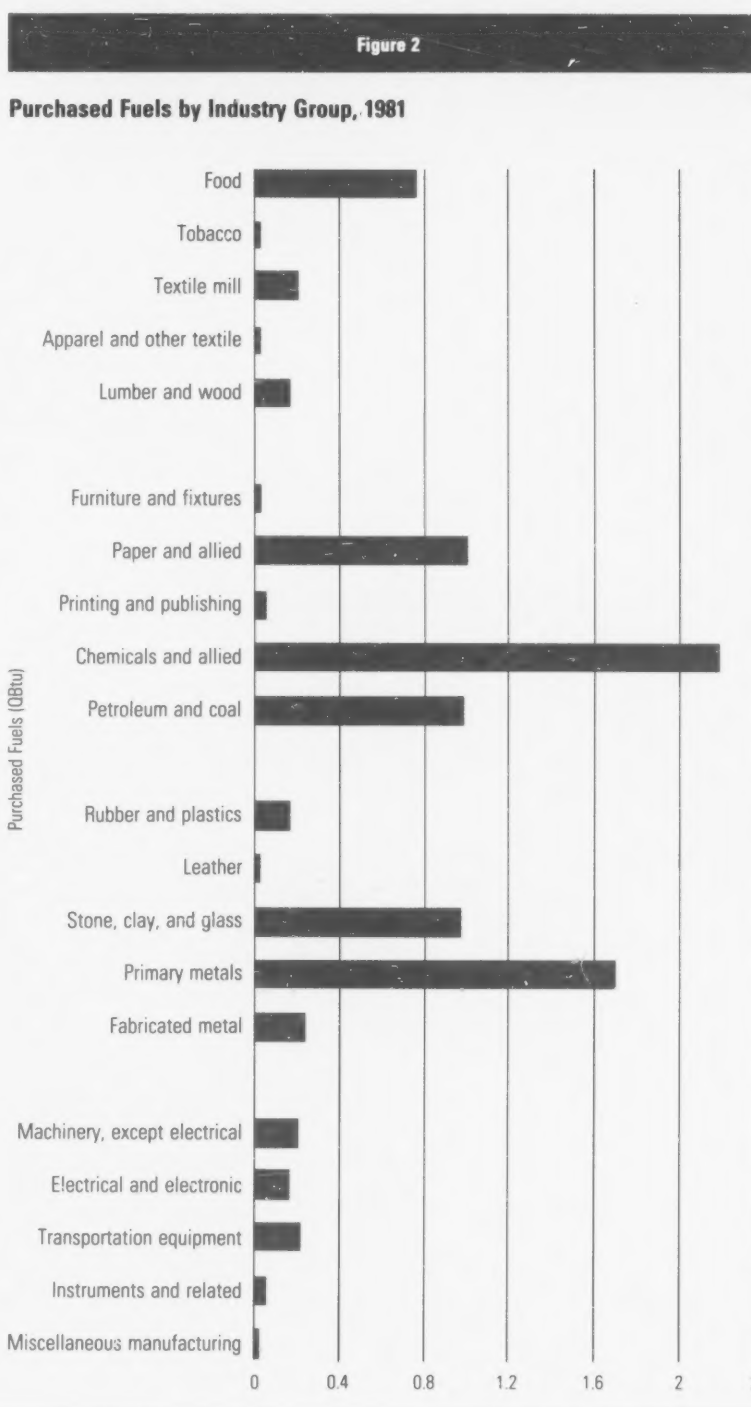


per, the electric intensity trends are not so cooperative—stone has remained relatively unchanged and paper has risen. Still, the lower temperature energy industries tended to show decreases in electric intensity while the higher temperature industries showed increases.

What do these trends mean? One interpretation is that changes in electric intensity for a given industry signal changes in technology used within that industry. The changes in electric intensity can provide leads indicating where to look for technology changes and what type of technology changes to expect. For example, we would look to the primary metals industry for technological innovations—new processes—that use greater amounts of electricity than previous processes, while in the food industry, we would look for factors that have led to conservation of electricity.

Of course, care must be taken in making these interpretations because changes in the electric intensity of a given industry group can result from other factors. For example, within a single industry, shifts in demand towards products that are more electric intensive can result in an increase in the industry's overall electric intensity. Or, basic conservation measures can lead to decreases in electric intensity even though no real changes in production processes are occurring.

Electrotechnologies' Impacts on Electricity Demand
By looking at specific electricity-



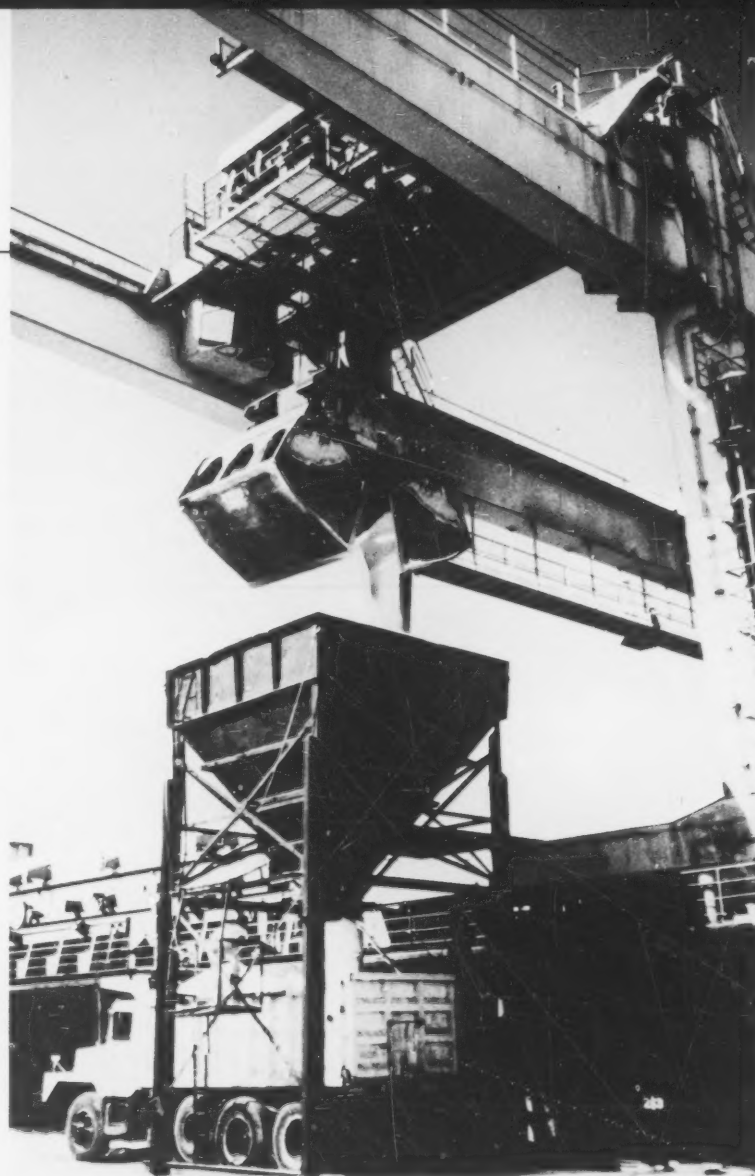
The stone, clay, and glass industry is among the six industries that dominate the consumption of fuels.

consuming technologies, it is possible to gain a deeper understanding of the process of industrial electrification. Many electrotechnologies are in various stages of development or use. Some are just attaining technical feasibility while others, long-proven technically, are just gaining economic viability as a result of recent fuel price shocks. Still other technologies have gained wide acceptance and are standards within their respective industries.

Philip Schmidt has summarized the characteristics of 24 of these electrotechnologies.³ Table 2 presents some of them, along with some of their important characteristics, by the industries in which they are applicable.

Not all of these technologies have established technical feasibility or economic advantages over their predecessors. Some technologies—the Alcoa electrolytic metals reduction process and the various plasma-based processes—are still in the development stage. In addition, not all of these technologies are more electric intensive than the technologies they are replacing. The Alcoa process and the adjustable-speed AC drives are replacing technologies that already use electricity as the primary energy source. In fact, these two technologies find their advantage in being able to reduce the electric energy required in the production processes.

What impact will these electrotechnologies have on future industrial electricity demand?



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Table 1

Process Manufacturing Heat Requirements (1974)

Process Manufacturing Activities	Low Temp. Energy % less than 350°C	Intermed. Temp. Energy % between 350°C-1000°C	High Temp. Energy % higher than 1000°C
Food	97	3	0
Paper	92	0	8
Chemicals	86	11	3
Petroleum	32	68	0
Stone/clay/glass	11	22	67
Primary metals	8	0	92

**... of particular interest to us is the influence of
technological change.**

Two studies have given some indication of what the ultimate answer might be.

MATHTECH, Inc., conducted a detailed analysis of the factors that influence industry's electricity demand and provided forecasts for electricity demand in the year 2000.⁴ Among the factors studied were economic growth, output, employment, trade, and technological change. Of particular interest to us is the influence of technological change. Included in this analysis were process changes in the chemicals, iron and steel, aluminum, and paper industries. The forecast results, with the impact of process

changes, are shown in Table 3.

It is noteworthy that an increase in industrial electricity demand due to process changes is projected—electricity consuming changes outweigh the effects of electricity conserving changes. However, the increase in electricity demand due to process change is only 0.8 percent of the total increase in industrial electricity consumption, suggesting that changes in electricity consumption due to process changes are negligible compared to changes caused by other factors.

Even more noteworthy is the fact that the effects of "efficiency improvements," such as "high-

efficiency motors, and variable speed and power factor controls," are not included in the process changes. The effect of such efficiency improvements, given in Table 4, are calculated separately. They are projected to save 82 trillion Btus of electricity, five times the increase in electricity consumption caused by process change. Clearly, increases in electricity consumption due to process changes easily can be outweighed by other factors.

The Electric Power Research Institute (EPRI) also is conducting an analysis of electrotechnologies and has projected electricity consumption by each of the

Table 2

Electrotechnologies by Industry Group

Industry	Electrotechnologies	Primary Competitors	Economic Advantage Established?	Electricity Consuming or conserving?
Food	Microwave Heating and Drying	Fossil-Fueled Ovens	Yes	Consuming
	Infrared Drying and Curing	Fossil-Fueled Heating	Yes	Consuming
	Adjustable-Speed AC Drive	Traditional AC Drive	Yes	Conserving
Paper and Pulp	Microwave Heating and Drying	Fossil-Fueled Ovens	Yes	Consuming
	Adjustable-Speed AC Drive	Traditional AC Drive	Yes	Conserving
Chemicals	Infrared Drying and Curing	Fossil-Fueled Heating	Yes	Consuming
	Adjustable-Speed AC Drive	Traditional AC Drive	Yes	Conserving
	Electrochemical Synthesis	Electrochemical Synthesis	Yes	Conserving
	Plasma-arc Prod. of Chem.	Conventional Thermal Cracking	No	Consuming
Petroleum	Adjustable-Speed AC Drive	Traditional AC Drive	Yes	Conserving
Stone, Clay and Glass	Direct Resistance Melting	Gas-fired Forehearth	Yes	Consuming
Primary Metals	Direct-Arc Melting	Basic Oxygen Furnace	Yes	Consuming
	Electrolytic Metals Reduct. (Alcoa Process)	Bayer/Hall-Heroult	No	Conserving
	Electroslag Processing	Vacuum-Arc Remelting	Yes	Consuming
	Induction Melting	Fossil-Fueled Furnace	Yes	Consuming
	Plasma Processing	Direct-Arc Melting	No	Consuming
		Blast Furnace	Yes	Consuming

In the iron and steel sector, electrotechnologies influence every step of production.



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technologies for the year 2000.⁵ Although the study is not complete, preliminary results project a tremendous increase attributable to these technologies—roughly 800,000 million Kilowatt hours (KWh), almost equal to the total electricity purchased by the total industrial sector in 1980.

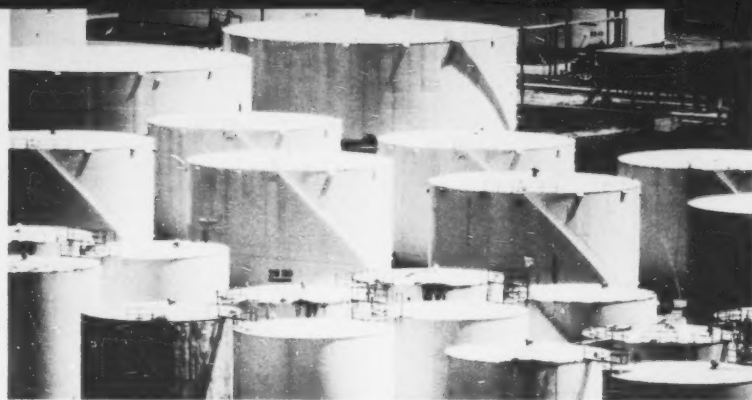
Care must be taken in interpreting these projections, however. In fact, little can be concluded from them about the aggregate effect of electrotechnologies on industrial electricity consumption. Some of these technologies are replacing technologies that already consume large amounts of electricity, and they will have the effect of conserving electricity. These tech-

nologies—adjustable-speed AC drives, electrolytic reduction, electrolytic separation, and electrochemical synthesis—make up a major portion of the electricity consumption increase projected in the EPRI study. If these technologies are removed from consideration, the net increase in electricity consumption due to the remaining technologies is about 170,000 million KWh. And still, the effect of removing the old technologies' electricity consumption has not been accounted for.

Industrial Electrification in Primary Metals

A market penetration analysis of electrotechnologies in the primary metals industry illustrates

how industrial electrification may affect electricity demand. In the iron and steel sector, for example, electro-technologies influence every step of production. The process of converting iron ore and scrap into finished steel is outlined in Table 5, along with the electrotechnology that can be used at each step.⁶ The Fisher-Pry diffusion model was selected to project the market penetration these technologies would achieve by the year 2000.⁷ The model is based on the observations of historical process changes that have taken place in industry. A new product typically undergoes an initial period of slow growth while bugs are ironed out and potential users wait to see what impact it has on



The petroleum industry uses the greatest portion of its energy at intermediate or high temperatures.

Table 3

The Impact of Process Changes on Purchased Electricity Demand

	1976 (trillion Btu)	2000
Base Case Demand	2590	4620
Base Case without Process Change	—	4603
Increase as a result of Process Change	—	17

Table 4

The Impact of Efficiency Improvements on Electricity Demand

	1976 (trillion Btu)	2000
Base Case (with efficiency improvements)	2590	4620
Base Case (efficiency held at 1976 levels)	—	4702
Savings due to efficiency	—	82

Table 5

Steel Production Process

Process step	Electrotechnologies
Primary steps:	
Iron-ore reduction	Plasma-arc furnace
Iron production	Plasma-arc furnace
Steel production	Electric-arc furnace
Secondary steps:	
Casting	Induction heating
Reheating	Electric Induction
Rolling	—
Annealing	Resistance heating
Heat treating	Resistance heating
Forging	Induction furnace
	Resistance heating



the "innovators" willing to try it. After the viability of the product has been established, it gains wide acceptance and goes through a period of rapid growth within the market. As the market penetration nears completion, its growth rate naturally slows. The result is an S-shaped curve for the market share over time. Given a product's current market share, the Fisher-Pry Model projects its particular curve.

Because the plasma-arc furnace has not yet reached full commercial development, the model cannot project its future penetration. However, laboratory tests on the technology have been completed and first-time commercial-scale installations

*... sectors that use considerable amounts of process
heat may also turn to electrotechnologies ...*

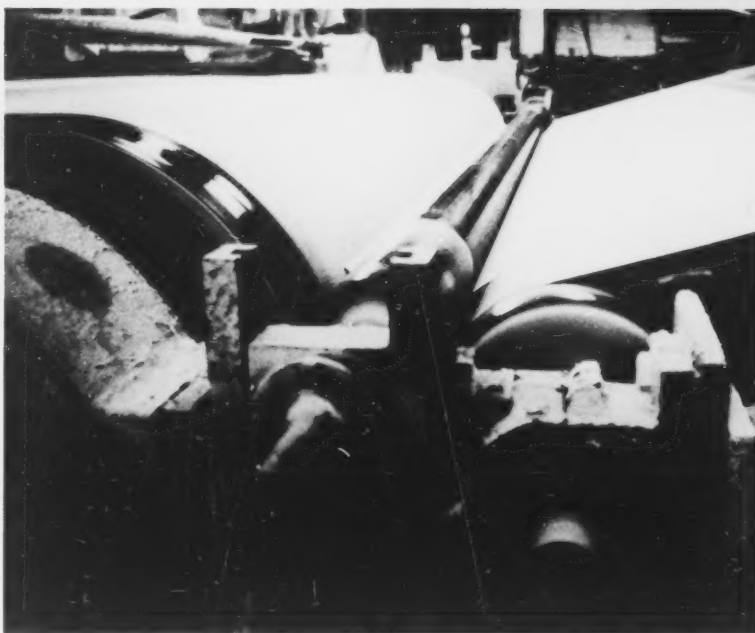
In the food industry, above and below right, conservation is a factor. In the paper industry, below left, electric intensity has risen.

are being tested now to demonstrate the technical feasibility of plasma-arc metals reduction. Preliminary economic analyses indicate that plasma-arc furnaces may provide significant cost savings.

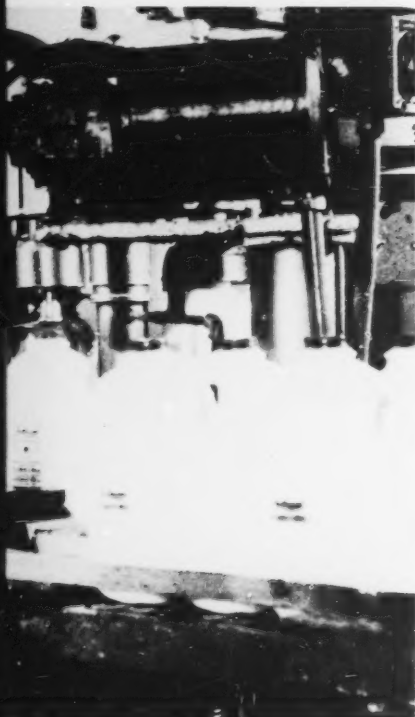
In contrast, the electric-arc furnace has been in use since the early part of this century. First, it was used primarily to produce specialty steels, about 10 percent of overall steel production. During the late 1960s, however, its use expanded into other areas of production, and now it is used to produce approximately 30 percent of all steel. Using the Fisher-Pry diffusion model, it is projected that roughly 60 percent of all steel will be produced with the electric-arc furnace by the year 2000. If present-day domestic production levels of steel are maintained, that translates into doubling of electricity consumed by electric-arc furnaces, from 18,000 million KWh today to 36,000 million KWh in the year 2000.⁸

Of the two remaining processes, induction melting is the more significant. Induction melting is used in metal casting and, like the electric-arc furnace, its use began to increase significantly in the late 1960s. In 1981, approximately 30 percent of the iron cast was heated in induction furnaces, consuming about 20,000 million KWh. According to the model, by the year 2000 about 55 percent of all the iron cast will be produced with induction furnaces.

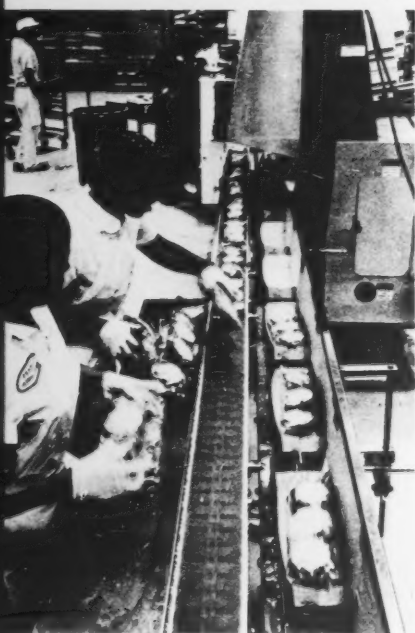
Thus, on the basis of the electric-arc and induction furnaces alone, the electric inten-



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sity of the primary metals industry could increase about 35 billion KWh by the year 2000. And, when applied to the entire manufacturing sector, the Fisher-Pry model projects electricity consumption at 60 percent of total industrial energy consumed in the year 2000. At 1981 energy consumption levels, that amounts to an increase in electricity consumption from 660,000 million KWh to 926,000 million KWh.

Conclusion

Although electricity consumption per unit of output is declining in most industrial sectors, it is increasing in some industries that use a significant amount of process heat. The primary metals industry provides the most dramatic example. Its electric intensity has increased by 70 billion KWh since 1960. A shift toward the use of electricity-based technologies is part of the reason for the growing electric intensity of primary metals, and that shift is expected to continue. Other industrial sectors that use considerable amounts of process heat also may turn to electrotechnologies to reduce production costs. In addition, however, new technologies are being developed that conserve electricity. In several industries, these technologies and other factors have combined to reduce the intensity of electricity use, and one study indicates that technology substitution will have a negligible effect, compared to other factors, on the overall change in industrial electricity consumption. ▀

NOTES

1. C. C. Burwell, *The Role of Electricity in American Industry*, Institute of Energy Analysis, Oak Ridge Associated Universities, 1984.
2. Electric intensity is measured as the power purchased divided by the output index relative to the output index for 1967 = 1.00.
3. Philip Schmidt, "Electricity and Industrial Productivity: A Technical and Economic Perspective," prepared for the Electric Power Research Institute, 1983.
4. MATHTECH, Inc., "An Assessment of Factors Affecting Industrial Electricity Demand," A report for the U.S. Department of Energy (No date given).
5. Electric Power Research Institute, "Industrial Electrotechnologies and Electrification Program Plan," May 1984.
6. This process is outlined in EPRI report EA 2761.
7. J. C. Fisher, and R. H. Pry, "A Simple Substitution Model of Technological Change," *Technological Forecasting and Social Changes* 3, 77-88, 1971.
8. Case assumptions: Electric-arc furnaces consume 500 KWh/ton of electricity; production level of steel is 120 million tons.

WHAT HAPPENED? WHAT DOES IT MEAN? WHO'S IN CHARGE?

November 6, 1984—In an important victory for the President, with important gains for his party in the House of Representatives, and in hundreds of other national, state, and local elections, the sum of the parts that equal the American democratic process once again manifested itself.

To begin to analyze the results and study the possible impact of the November 6 elections, Edison Electric Institute (EEI), through its Governmental Affairs Planning and Coordination Division, invited Washington political consultants Bernadette Budde, Kevin Gottlieb, and Eddie Mahe, Jr., to share their "morning-after" views with a gathering of member company representatives, EEI staff, and related individuals—over 100 altogether.

What follows on these pages are the edited versions of their remarks as well as selected questions and answers from the audience participation portion of the program.

Bernadette Budde runs the political education program for the 3,000 member Business-Industry Political Action Committee. She also edits BIPAC's monthly report on congressional activities and electoral patterns, *Politikit*, and *Politics*, a digest of trends and developments in the political world. Perhaps EEI Vice President for Planning and Coordination Dave Parker described Budde's political import best when he said, "When anyone is considering running for a federal office at the Senate or House level, you can be sure that one of the first visits they pay to anybody in Washington, D.C., is to Bernadette. They want her ideas, her input, and her advice."

Presently the executive assistant to Senator Donald Riegle of

Michigan, *Kevin Gottlieb* has been on academic leave from Syracuse University for the past six years to work in the United States Senate. In his first Senate position as Energy Advisor to Senator Wendell Ford, Gottlieb worked on the development of the first National Energy Policy in 1977. He later served as executive assistant and legislative director to Alan Cranston and managed the successful reelection campaign for Riegle. Gottlieb was director of Walter Mondale's Presidential Exploratory Committee until March 1983 when he came to his present position. He has written and lectured about public policy for two decades.

Eddie Mahe, Jr., has played an integral part in Republican

Party politics for many years. Presently, he is President of Eddie Mahe, Jr., & Associates, a political consulting firm. In addition to his consulting work, Mahe is President of Precision Targeting, Inc., a communications targeting and geodemographics firm for direct mail and media buying. Mahe is also founder of Campaign Works, a bi-partisan organization that provides political education for corporations and trade associations. He continues to conduct a variety of training seminars for Republican candidates and campaign workers and for organizations such as the American Society of Association Executives, the American Medical Political Action Committee, and the American Bar Association.



The American democratic process once again manifests itself.

Perhaps they were Phil Gramm's, not Ronald Reagan's, coattails in Texas.



To me, the most remarkable aspect of all of the election night coverage is how overlooked the survivability of the Democratic incumbents in the House of Representatives actually was. The television networks kept focusing on the landslide, the avalanche, whatever they wanted to call it. But in my view, that really isn't what it was all about.

I decided we had five elections on November 6—four in addition to the House races. The Presidential race to me was separate; Senate races seemed to be very separate; governors' races seemed to be very separate; and, since my knowledge of state legislative races is limited, I can only conclude that they had to have a different pattern as well. So you could easily find five different sets of coalitions operating out there.

The conclusion, which many of the network commentators drew, that there is realignment—that Catholics, blue collar ethnics, working women, all of these people have formed an alliance with the Republican Party—may only be true in the Presidential aspect of the five different kinds of elections that we had.

Looking numerically, the Democrats gained two seats in the Senate, the Republicans gained 14 seats in the House, and exactly 5 percent of the incumbents who sought re-election were defeated. So we go through these elections to find out what history tells us is going to happen, that 95 percent of the

incumbents will get re-elected, even in a supposedly landslide year.

Looking by region at the House gain of 14 seats for the Republicans, there was only one gained in the West, supposedly Ronald Reagan's best territory. There was a net gain of six in the South where big swooping coattails went through North Carolina and Texas. In the Midwest, the Republicans gained a net of



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two, and, in the East, in what should have been the Republicans' worst area, they gained a net of five because they didn't lose anything.

To me, the question to ask ought to be why were so few seats gained? My pre-election projections were in the low teens, but I'm always very low and very skeptical because I like to be pleasantly surprised. But many people projected in the low 20s, and there were even people who were projecting 30 or beyond.

Why weren't more seats gained? Well, one reason was

Bernadette Budde:
"I decided
we had five
elections on
November 6."



Charles Feil

that the incumbents found that Ronald Reagan's prairie fire was coming, and they heard the whistle blowing long before the smoke got to their rooms. Then they hid behind the fire walls of their safe congressional districts, drawn for them just recently in 1981 and 1982. They stuck on their asbestos suits, which you could easily say were their constituent services. And if all else failed, they had the fire sprinklers ready to start at any moment, the sprinklers being the dampening cross-currents that were already stirring in some instances in their own states. The incumbents reacted as incumbents always do, with the survival instinct, and that's probably not a big surprise because they had such a big early warning.

Another reason there were so few Republican gains is that so few seats were open—only 27. The Republicans had 14 and the Democrats had 13 in the House. Well, the Republicans did very well; they picked up 6 of those 13 open Democratic seats. You can extend the logic and say, had there been 30 open Democratic seats, the Republicans would have picked up the same ratio of them, which would have been 15, but there were simply tons of incumbents hanging around this year.

***T*here are going to be only seven new faces in the Senate . . .**

Another reason for the low level of Republican gains is that the coattail factor did not materialize in the 11 states that I call sole-tails, or pure-tails, where only Reagan and candidates for the House were running. Now, the theory was that if there weren't any local cross-currents to interfere, Republicans should have gained the bulk of their seats in those states. Well, the Republicans did get a few seats that way—one each in California, Connecticut, and New York. But they came out of Florida and Pennsylvania with no gains, and they came out of Ohio down one. When that happened, you knew you were in for a very long night of not very many gains.

Coattails did not materialize in what I call high-tail states either. In these states, there was somebody on the ballot locally who would do well, plus Ronald Reagan, so the House candidate would have a coat with two tails to grab onto, one with each hand. Take Virginia, for example, where everyone knew that John Warner was going to run away with it. Republicans gained nothing in Virginia.

The surprising states were the ones that I call cross-coattails, which means that there was something local on the ballot. In Texas, for example, we weren't exactly sure how the Texas Senate race would affect congressional campaigns. As it turned out, they were phenomenally successful for Republicans. You can probably argue that they may not have been Ronald Reagan's coattails that brought in four seats in Texas; maybe they

were Phil Gramm's. In North Carolina you could probably argue that they were not so much Ronald Reagan's coattails as they were Jesse Helms' and Jim Martin's.

Another reason there were so few Republican gains is that very little was done to undo the so-called fluke of 1982, to restore the seats lost then or in 1980. There was very little cashing in on people who ran in 1982, lost, and hoped to make 1984 a better year. Few people who ran for the second time were able to win. The states that lost big seats in 1982, such as Pennsylvania and Virginia, didn't produce any gains.

Also, a lot of the 17 new seats created by the redistricting in 1981 and '82 were supposed to have been created for the Republicans; remember when that was the big story? Well, the Republicans gained two of those.

I think massive ticket-splitting also weakened the coattail factor; that's the kind of thing that I did not get from any of the networks on election night. I'm not sure who those ticket-splitters were, probably the groups traditionally part of the Democratic coalition such as urban blue-collar ethnics, maybe southerners. Obviously, they found that voting for Democratic candidates for the House did not compromise their voting for Ronald Reagan.

Looking over the new Congress, the first thing to look at in the Senate is the question of whether there will be movement: will Jesse Helms take over Foreign Relations? I think the

answer is yes. But other than that, there's probably not going to be a whole lot of flipping around based upon who won and lost. For the majority leader in the Senate, Richard Lugar still has the inside track. I don't think the elections affected that at all.

There are going to be only seven new faces in the Senate, and they're very experienced people. Four are from the



John Warner's run-away victory in Virginia had no impact for Republicans in that state.

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House: Gore, Harkins, Simon, and Gramm, and not a shrinking violet among them. One is a former governor, one a former lieutenant governor—no shrinking violets—and one a former county executive. These people have experience, unlike all those new faces of 1980 who had never run for anything before. They thought it was kind of groovy to run for office, and they were going to run the Senate like a business. You now have people who understand the legislative and political process.

Also, there are prima donnas, and it's going to be hysterical to

watch them tripping over one another to get to the nearest television camera.

In the House, I would ask whether 14 is enough to switch the ratios on committees, particularly to unstack Ways and Means, Appropriations, Budget, and whatever else may have "too many" Democrats.

The new faces in the House are also surprisingly experienced. Of the 44 freshmen, I

How well would the Republicans have done if their candidate had been Walter Mondale instead of Ronald Reagan?



count 21 who have been in the state legislatures, and some of them have been fairly powerful. Two are former Congressmen, and 15 are what I call quasi-political in their backgrounds; i.e., they have been local officers (we have two sheriffs) or they have been involved in some Hill office (like Larry Combest, who worked for John Tower in Texas). Only six are politically new faces.

The heavy breathers—those fairly right-wing in their attitudes and not ashamed to be so—are people like Bob Smith in New Hampshire, Tom DeLay in

Texas, Pat Swindall in Georgia, and Helen Bentley in Maryland. You will know she is there.

In terms of the House leadership battle, the real loser was Jim Wright. If I wanted to be the next Speaker of the House, I'd want as many Democrats in my own state delegation as I could find. In effect, Wright's down five, including throwing away the Phil Gramm seat to a Republican. Somebody from California or Pennsylvania may have a bigger base than Wright does.

I think we got some very confusing messages in this election. To me, the scariest part is that there weren't any coattails. But what if *this* were coattails? What if the Republican Party, without Ronald Reagan, is 1982? What does that mean for 1986?

If the Democrats' future is to begin from the base of support left over from November 6, then indeed, the Democrats' future is quite dismal. Clearly, the Democratic Party at the national level is poorly designed to battle over the themes for the country, over the geographical balance of politics, and over the electoral college. We're just not put together right in order to do it.

I think the Reagan victory really is a testimony to an individual who knows both his strengths and his weaknesses, who knows how to get the most out of himself, and who knows how to apply himself to a specific task with targeted energy. It's also a testimony to a party that



basically rebuilt itself in eight short years. Many of us feel that if only Gerald Ford had won in 1976, the Democratic Party would be a lot better off today. Indeed, when Ford lost, the Republican Party did the reassessment that was necessary—the one that the Democratic Party did not do in 1980. As a result, in eight short years, the Republican Party has the makings of a very, very strong national party for some period of time.

The Republicans are remarkable at the way in which they market candidates and messages. They're remarkable about how they achieve results with a relative minimum of wasted effort. But I find myself wondering, as I admire their skills and insights, how well they would have done if their candidate had been Walter Mondale instead of Ronald Reagan.

Those who saw Walter Mondale's concession speech on November 6 I think, in all fairness, would have to say that he is a decent man, with basically decent intentions and concerns for the country, who handled an obviously humiliating situation with a measure of grace and dignity.



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Charles Feil

Kevin Gottlieb:
"Were the voters voting for the man or for the mandate?"

Given that kind of a person, who is obviously not good at all the things that Ronald Reagan is very, very good at, the interesting thing to me will be to look at 1988 in terms of the Republican Party and to see, first of all, how well it handles the fratricide that is going to occur on its side. Secondly, once the Republicans come up with a candidate, the question will be how well can the marketing mechanism work when they have to market something less than the likes of Ronald Reagan.

Obviously, this election sends the Presidential aspirants, the campaign managers, and the political pundits back to the design board for 1988.

I believe the Reagan team broke ground in the area of non-political political television commercials. I think that they will be the wave of the future. I think that we'll see more and more of the candidates' not being a part of the actual political ads themselves.

The voter registration strides on the part of the Republican Party are also noteworthy. They were taken with more care and targeting than those on the Democratic side. I heard Jerry Falwell on election night when he made it quite clear that these efforts are made every year and not simply for a single election.

The third area where the Republicans broke new ground is with the 18- to 25-year-old voter. I have taught on university campuses for 20 years, having taught approximately 20,000 students over that period of time. I've been through the sixties and seventies with university students and now into the eighties. I've seen the evolution of the student mind. I've also seen the degree to which it can



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"In terms of the House leadership battle, the real loser was Jim Wright."

oscillate and be capricious. But the one thing that has impressed me about the way the Republican Party has gone about looking at the 18- to 25-year olds is that it wants to give them a stake in the operation so they will realize that their investment has a decent return and therefore, that they ought to keep investing in the corporation. It will be interesting to see whether or not variables between now and the 1988 election mitigate their commitment.

I think the fourth and last area where the Republicans broke new ground is in the con-

**I don't think Democrats can ever go back to where the
Democratic Party was . . .**

tinual use of electronic methods for voter targetting, voter contact, and, more specifically, voter motivation—getting people to the polls.

It seems to me that the most interesting question that comes about from election night is: Were the voters voting for the man or for the mandate? That question will forge specific directions that may be followed in these ensuing years. The evi-

man is that for all of the Reagan team's effort and its candidate's genius and skill, it could not sew coattails on the President's jacket. For example, the gains in the House were modest, even by comparison with the Republican Party's stated goals. The losses in the Senate also were significant, especially considering that the President invested so much of his own time in the two weeks preceding the election trying to

the President must now deal.

Add to this reality the 1986 Senate election lineup and I think there should be serious misgivings on the Republican side. There are 23 incumbent Republican Senators who will be seeking re-election in 1986. Not even my Republican friends in town describe that class, those who came in in 1980, as heavy lifters. Most are first-termers who were washed up on shore by the flood tide in 1980. They know they will have to run with a lame-duck President who must cut spending, raise taxes, and seek his place in history while riding forward on their backs.

Now, if those Senators don't vote for the President's budget cuts, then the President is diminished. If they do vote for the President's budget cuts, then their chances for re-election are diminished. A real Gordian Knot.

In the Senate, seven incumbents are gone, giving the Democrats a net gain of two, which I think is significant given the President's strength. There was only one change on the Senate Energy and Natural Resources Committee; Paul Tsongas is gone. What does this do to the working majority on the Senate side? Regardless of who is going to be the majority leader, the majority, in my judgment, would appear to be diminished at best, and it may be gone. Why? Those 1984 Republican candidates such as Jepsen, Shamie, and Raese, who embraced the President and his positions zealously, almost without reservation, didn't succeed even when he was



Richard Luger and Robert Byrd: Senate majority and minority leaders?



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dence in my judgment would suggest that voters were voting more for the former than the latter. They chose the man, not the mandate. I make this assertion, first, because I think the Reagan campaign emphasized general themes, not specific issues. Second, the Reagan campaign emphasized style, perception, image, and appearance of a man, not the substance, facts, limits, or reality of specific problems and specific policies. I think that was a very smart thing to do, and it was done impeccably.

The third reason that I think the voters were voting for the

bring home perhaps the two biggest losers—and I don't mean that in the pejorative sense—Percy and Jepsen. Finally, the relatively non-existent gains at the state capitals and in the state legislatures, in my judgment, do not auger well for those Republicans who were hoping for a mandate for wholesale structural changes in the system.

In short, the much-desired realignment of the party membership and demographics did not occur. It is not likely to occur or to gain force in any serious way over the next four years, given the structural base with which



Charles Feil

Eddie Maho:
"... there was
not a lot of good
news on elec-
tion night."

on the ticket. Why should the 23 incumbents who are up in 1986 believe that the President will be stronger in 1986 when, one, he's a lame duck; two, he might be saddled with a lame economy; and, three, he will have, no doubt, a legacy of budget cuts, which those Senators may have to vote for between 1984 and '86.

I believe some of these Republicans will stray from the majority in order to protect themselves back home when there is legislation that would be injurious to their own 1986 re-election efforts. When they stray with only a two-seat majority, obviously that's going to be a problem.

In the area of the majority leader, there are five candidates: Dole, Stevens, Lugar, McClure, and Domenici. And I think it's going to be Lugar. It's a secret ballot, and everyone is running around and saying, "Oh, don't worry, you can count on me." Some guy is going to end up with three votes and 26 people saying, "I was with you."

At any rate, I think it's going to be Lugar, and I think he's going to be everybody's second choice. He's not a powerful speaker. He's not a persuasive television personality. The comparisons to Howard Baker will hurt both Lugar and the Party's productivity. As a result, Lugar

is not going to add to the strength of the majority in the Senate.

I think Jesse Helms is going to switch over and go with the Foreign Relations Committee. I can just hear the lilting voice as it explains why he must go against what he told the people of North Carolina about staying on the Agriculture Committee—it's going to be a tour de force. Foreign Relations, in my judgment, is a much more powerful committee, especially during times of international uncertainty, and I think we will have that uncertainty during these next four years. And—here comes my next bet—I think Helms is going to run for President.

The Democrats will stay with Robert Byrd as minority leader. He has already lined up commitments and is obviously quite splendid at doing that. The Democrats will make a change in 1986 when they get the majority, but why have internal battles right now?

Final comment: Although there was not a realignment of structure, there was a realignment of theme. I don't think Democrats can ever go back to where the Democratic Party was and have a pretense of being successful at the national level. I think they know it. All the Democrats in Congress who I know beneath the age of 48 know it in their viscera. I think these elected officials, particularly those in the Senate, who have the luxury of the six-year term—are going to tell the traditional wing of the Democratic constituency, "We're going to be espousing a

new theme. And we don't give a hoot whether or not you think we're wrong for doing it because you haven't been able to deliver much in the past anyway."

From my perspective, there was not a lot of good news on election night, the President's victory notwithstanding. Given the way the total election came out, 51 percent of the popular vote for the President would have been just as good as the 59 percent he received. The good news that did come out of the election is that, if it holds at 14, Mr. Reagan can say that he had the best second-term re-election in this century in terms of net gain in the House. The highest before this was with McKinley, who gained 13; President Nixon gained 12 in 1972. So Mr. Reagan will have a record of sorts out of this election.

What we saw on election night was a mandate, but it was a reverse mandate. I do not believe that the voters were voting for any policies articulated by the President. To some extent, they were voting for the fact that economic times are good. But, to a larger extent, I think the vote they were casting was an absolute rejection of New Dealism. The voters were saying—and I think it is particularly true among the young voters—we do not accept the governmental operating philosophy, if you will, of the New Deal. We don't want that anymore. We don't know for sure what this guy Reagan



... **I think incumbency carried a tremendous driving force.**

has because he hasn't said it that explicitly, but we know he's not one of those New Deal folks.

Without question in my mind, Walter Mondale was the best candidate that the New Deal could put up. He understood and was able to communicate with the traditional constituencies involved in that New Deal coalition; he got the support from that New Deal coalition. Obviously, it was not adequate to elect him President.

There has been a lot of discussion about coattails. But the fact is that the only two states where we did see any apparent coattail effect were North Carolina and Texas—the two states where there were strong, heavily contested, philosophically opposed candidates for the U.S. Senate. In those races there were candidates with visibility—which congressional candidates do not get a whole lot of—articulating a sharp contrast, a sharp philosophical, governmental contrast. And I think that is why we saw coattails in those two states, compared to some of the others where that kind of sharp contrast was not drawn.

Another reason we did not see anything resembling coattails is that people were not unhappy about anything. They did not have to go beat somebody up to feel good. They were just able to go in and vote for the incumbents, for the people that were already there. The voter said the status quo is not all that bad: I've got a job; inflation is down; the future may look a little puzzling because of this deficit, but I don't know for sure that I need

to worry about that; I'm quite confident I don't need to worry about it if it means raising my taxes; I know if Reagan is President he's going to fight a tax increase, so it's okay if I send this taxing congressman back because he's kind of going to balance it out.

There were a lot of ambivalent feelings that the voters were not able to sort out all that well or clearly. As a consequence, I think incumbency carried a tremendous driving force.

The generic ballot that the Republicans were talking about over the week prior to the election—when voters were asked simply whether they would vote Democrat or Republican—also demonstrates the power of incumbency, I think. The widest gap in the generic ballot was the one put together by the *New York Times*/CBS. On the Saturday before the election, it had Republicans up four points, 48 to 44. I don't want to compromise my good friend Adam Klimer (being with the *New York Times*, he is above all this), but on the Saturday before the election he told me the Republicans would gain 30 seats. I bracketed 28 to 32, so I was off a long way myself from the actual 14.

It will be very interesting to try and find out what was going on with the generic ballot and why it showed stronger Republican support than the actual vote did. Somehow, when the names came into play, the generic ballot figures didn't hold. Again, I think incumbency made the difference here. You cannot have an incumbent congressman's

spending a million dollars in self-promotion over a two year period without its having a tremendous impact on his reelection.

In any event, probably everyone in politics is about to go through one of the more fascinating political periods in history. We have an open nomination in 1988—an open nomination with no heir apparent in either party.



I think that it is true that the Democratic Party is about to jump a generation. But I think whoever is going to do that jumping may end up all wet because I think some of the big constituencies like organized labor are not quite prepared to make the jump. To make the jump in the Democratic Party without organized labor there flapping its wings will be very difficult. Probably every name you hear as a prospect for 1988 in the Democratic Party is of the new generation. The trouble is that many of their coalitions are not yet controlled by that so-



Jack Kemp:
"most recognized as part of the so-called new generation."

called new coalition.

The Republican Party has the more difficult situation because it has not so effectively washed out the old school, those members over the age of 48. There are still too many of them around who are going to be out there on the playing field. I think that's going to be a real problem. Bob Dole, Howard Baker, and George Bush are still part of an older generation,



what some of us call the defeatist Republicans, the do-nothing Republicans. Then you have some new ones starting to come along; Jack Kemp, obviously, would be most recognized as part of the so-called new generation.

Along with the generation movement taking place in the next four years, we also have a very basic philosophical shift taking place in both parties at the same time. The new liberal Democrats have had their conferences, published papers, gotten books out. They're trying to wrest control from the old New-Deal type of Democrats, those

who said government is the solution for everything. The neo-liberal Democrats are really not that different; they say government is the solution, but government just must be more efficient.

The same kind of philosophical battle is about to take place in the Republican Party. For years, this party has been dominated, especially in Congress, by people who said close it down



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whenever they had an opportunity. Their favorite vote was no. This group in the Republican Party brought us to where we are now in many ways. The American people want an activist government, a catalyst for solving problems. They do not necessarily want the government to do it all itself, but they think the government has a role. Too many Republicans say no, government doesn't have a role, close it down, do away with those programs.

A new group in the Republican Party, headed by folks like Jack Kemp and Ben Weber, is

now advocating this new activist philosophy—a philosophy that does recognize the role of government in solving problems.

From the perspective of trying to move legislation, trying to get an agenda enacted, trying to stop somebody else's agenda, groups must understand the generational and philosophical conflicts that are going to be taking place up there on that Hill. The odds are overwhelming that our next president is wandering around there someplace, and about half of the people up there think, "It ought to be I."

We have this little hiatus until 1986. From this moment on, what happens in 1986 totally depends on the economy. I think it's going to hold together. I've got to think that; otherwise, it's too bleak. ■

Bob Dole, left, and Howard Baker, right: "still part of an older generation."



A PENNY SAVED IS \$15 MILLION EARNED

Utility efforts in recent postal rate proceedings pay off in significant savings in customer bill mailing.

Although the first-class rate for letters will go up 2 cents in early 1985, the rate for the presorted, first-class mail utilities use in billing will go up only one penny. For the entire utility industry, all electric and gas companies, which mails about 1.5 billion pieces annually, that penny savings will amount to \$15 million each year.

This rate development represents a significant effort by utilities that goes back to 1971 when Edison Elec-

tric Institute (EEI) and the American Gas Association (AGA) perceived that postal rates and other postal matters would be of increasing importance to the utility industry and each association organized a Postal Affairs Task Force.

In March 1972 following the close of the first postal rate case under the Postal Reorganization Act of 1970, EEI and AGA joined efforts and formed the Council of Public Utility

Mailers (CPUM) to represent their interests before the Postal Rate Commission and the U.S. Postal Service. CPUM has participated actively in all subsequent rate cases as well as in a variety of other classification cases involving the Postal Rate Commission. Among its other activities, CPUM was responsible for broadening the membership of the Postal Service's Mailers' Technical Advisory Committee to include first-class

PRESORTED
FIRST-CLASS



mailers, and it has appeared on numerous occasions before House and Senate Committees considering postal legislation.

As Special Counsel, Eugene E. Threadgill has been active in representing CPUM since its inception. A former Assistant General Counsel to the Postal Rate Commission, Threadgill joined the Washington, D.C., law firm of Connole and O'Connell in 1972 following experience both in private practice and with the Federal Power Commission.

Recently, Electric Perspectives visited with Threadgill for his perspective on the latest postal rate developments.

EP: Can you give us a little background on this recent rate ruling?

Threadgill: It took us three years, from 1973 until 1976, to

persuade the Postal Service to establish a bulk, or "presorted," first-class rate. To qualify for the original 1 cent discount, a mailing had to include a minimum of 500 pieces sorted by ZIP codes—not less than 10 pieces per five-digit coding and not less than 50 pieces for a three-digit coding. With anything else, you have to pay the full first-class rate. In 1978 the discount was increased to 2 cents, and in 1981, the Postal Service increased the discount to 3 cents. We argued even then that 3 cents was not an adequate discount—that it should be 4 cents. We even went to the Court of Appeals about it and lost there.

In this present case we surely expected the Postal Service to increase the discount spread to 4 cents. It didn't. Instead, it filed

to maintain the 3 cent spread. And the American Postal Workers Union and the staff counsel of the Postal Rate Commission—the Office of the Consumer Advocate—even recommended reducing the spread to 2 cents. Faced with that kind of opposition, we were the only ones who pressed for an increase in the discount. Other first-class presorters merely defended the 3 cents against attack. So the utility industry, plus our joint client, the American Retail Federation, were the only protagonists who sought a 4 cents spread and presented evidence for it. Actually, we asked for 4½ cents. But we got 4 cents, and it is a major victory that will benefit a lot of people—state and local governments, credit card and oil companies, the telephone peo-



ple, insurance companies, banks, a whole gamut.

EP: How much is the discount worth to the utilities?

Threadgill: For the electric and gas utilities, who probably mail 1.5 billion pieces of mail annually, the additional one penny is worth about \$15 million in savings a year. If these rates remain in effect for four years, that's \$60 million.

EP: Isn't there some ambiguity about whether or not this most recent ruling will actually become effective?

Threadgill: Well, this began on November 10, 1983, when the Postal Service filed its request for a rate increase. Under the statute, the Postal Rate Commission had 10 months in which to

reach a decision. The Rate Commission reached its recommended decision in early September. Now it goes to the Governors of the Postal Service. The Governors meet once a month for two days to review the policies and activities of the Postal Service. It approved the rate filing in November 1983, and looked at the rate recommendation at its meeting this past October, but there was no discussion and the decision was put off until the November meeting.

EP: Will it pass then?

Threadgill: The whole decision is complex. On top of reducing the presorted rate below that requested on 12 or 14 billion pieces of mail, the Rate Commission's recommended decision also entails reducing the Postal Ser-

vice's first-class rate increase request from 23 cents to 22 cents—and that's on 60 billion pieces of mail. We're talking about a lot of money to the Postal Service. Then, in addition, the Commission didn't give the Postal Service the full third-class rate increase it requested. As a result of all this, the revenues generated by this set of recommended rates will probably be \$2 billion less than the Postal Service asked for.

EP: So is it going to pass?

Threadgill: Will the Postal Service sit still for it? Will it try to get the recommendation changed? If it tries to get it changed, will it go back and ask for a reconsideration of everything, or just the first-class and third-class rates? These are very

Almost 85 percent of the Postal Service's costs are for labor or related expenses.



**'... these rates are high enough to get the Postal Service
by for three or four years.'**

complex questions. My present feeling is that the Postal Service can live with what is recommended. The Postmaster General has stated publicly that if he got the rates he requested last November, he expected them to remain in effect for five years. Now, with the lower rates recommended by the Rate Commission, it just means that the Postal Service will reach the time when it needs to file a new rate request sooner. That's all. So these new rates would be in effect for 1985, '86, and '87, with a new request filed sometime in 1987 to be effective in 1988 instead of a year later. My feeling is that these rates are high enough to get the Postal Service by for three or four years. The Postmaster General is leaving and there has to be a new Postmaster General. It's a political year, so why rock a lot of boats?

EP: Whatever the size of the increase, what will the revenues it generates cover?

Threadgill: The Postal Service is very labor intensive—85 percent of its costs are labor or related costs. The postal workers have cost-of-living adjustments in their contracts. Consequently, when inflation was 8 or 9 or 10 percent, the Postal Service's costs were going up that much each year. There has been a bit of increased productivity, and a good bit of this increase is attributable to mailer presorting. So, as the gross volume of mail goes up, a proportional increase in labor is not required. Nevertheless, the Postal Service's costs probably will go up about 3 or 4

percent a year. So, you figure in four years it will probably need at least another 10 percent on top of the 10 percent in the present package—another 2 or 3 cents to the 25 cent level. Of course, we would then ask for a 5 cent discount.

When the Postal Service filed this rate request it actually projected it would be in a deficit for fiscal 1984. Now, as all of the

per enclosures, and, of course, the third-class mailers want to keep the rates down so they can keep the newspapers from siphoning off all of these inserts.

EP: How did CPUM engineer its success in the recent rate proceedings?

Threadgill: We put on a good case. Actually, we put on three witnesses. Two were witnesses that



Sue Klemens

numbers for the year are coming down, they're actually in a break-even position for the year. Instead of a deficit of \$500 million, they're running about \$500 million ahead of what the estimates were. And that's because the volume of mail is going up very rapidly, both in first-class and third-class, with large increases in presorted and third-class mail. One of the big fights is between the newspapers and the third-class mailers. The newspapers want third-class rates raised higher so they can capture more of the third-class type of newspa-

have testified before in several rate cases, and one witness, Fred Ford, is President of TABS Associates, one of the largest of the presort service bureaus that have sprung up around the country since 1956.

One expert, Richard Bentley, had been a staff economist with the Postal Rate Commission. He testified to the cost savings provided by presorting. The Postal Service collects costs by categories: they have mail handlers, and supervision, and some direct non-labor costs. He looked at the cost of handling presorted

Eugene E. Threadgill, special counsel to the Council of Public Utility Mailers.

Investor-owned
electric utilities
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million pieces
of mail a year.

letters on a per piece basis, and the cost is about 6 or 8 cents less per piece than for regular first-class mail. Now the question is how much of that difference is due to random factors. Does presorted mail go shorter distances, for example, which would mean that there was less cost but it would have nothing to do with the kind of mail it is? Bentley looked at these various factors and concluded that for comparable letter-shaped mail, with comparable origin, destination, etc., presorting mail and delivering it to the Postal Service saves 5.6 cents per piece. To be conservative, he recommended a discount of 4.5 cents, and we got 4.

EP: Who was the other expert witness?

Threadgill: The other expert witness was Charles Larson, an economist and former staff engineer with EEI who testified to the characteristics of bulk first-class mail—what kind of mail it is and how sensitive it is to price. He tried to persuade the Postal Rate Commission/Postal Service to treat large-volume first-class mail as a sub-class, and to base the rate for presorted mail on its attributable cost, in our case 8 or 9 cents plus overhead. Now, we didn't win that point. They said, "No, you don't have enough distinguishing characteristics to be a sub-class," and held that presorted mail is a rate category.

We said the Postal Service's costs for our mail should be viewed on a stand-alone basis. They said you don't look at costs for a rate category on a stand-





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alone basis—you have to look at what cost is avoided by presorting. It's a conceptual difference. The Postal Service says when a mailer brings presorted mail to the Postal Service in the trays, all labeled and metered so they don't have to do that—most of the savings result not from presorting but from other preparation, and the Postal Service thanks many mailers would do that other preparation anyway to expedite their mail. So they calculate that presorting saves less than 3 cents. Of course, they're looking at a totally different package of activities to quantify their savings.

Still, although we didn't win the sub-class status, we were able to persuade the Postal Commission not to adopt the very narrow cost-avoidance analysis used by the Postal Service.

EP: How much are EEI members spending on mailing their bills annually?

Threadgill: We figure the investor-owned electric utilities, including combination companies, mail about 800 million pieces a year. At 17 cents, the current bulk rate, that's close to \$140 million.

EP: Does the ruling mean that postal affairs will be quiet for the next 3 years?

Threadgill: Not quite. We still need to resolve the sub-class issue and the impact of ZIP+4. As the Postal Service automates the sorting of incoming mail with ZIP+4 codes, the cost avoided by presorting alone will decline and the presort discount will be

jeopardized. Large volume mailers are not adopting ZIP+4. The 6-billion-piece presort bureau industry will not convert without a much greater discount than one-half cent, which is what using ZIP+4 would give them. Utilities, for example, can save more by converting the 85 percent of their bills that can be converted to carrier route sorting, which would save them one cent, than by going to ZIP+4. Other large volume mailers understand that adopting ZIP+4 will undermine presort discounts unless we have sub-class status. This issue will have to be settled before the next postage rate case. ■

Editor's Note: Although the Board of Governors heard the Postal Rate Commission's recommendation on the proposed rate increase at its November 1984 meeting, no decision was made. At press time, the matter was scheduled to be considered and resolved at the Board of Governor's December 11 closed-door meeting.

ORGANIZED OUTREACH

Part of the nation's history since Columbus, Hispanics today represent a growing segment of the population that cannot be ignored.

By Mark Reynolds

Mark Reynolds is a freelance writer based in Washington, D.C.

"Aquí se habla español"—this simple phrase posted in shop windows across the country signals a major shift in American demographics and represents a crucial challenge to American business and industry. A sign in the window inviting Spanish-speaking customers is an important step for businesses toward meeting the challenge to attract and serve the nation's Hispanic community. Larger businesses and industries, such as the electric utility industry, require a greater public information effort, though the spirit of the sign in the window remains the same. An awareness of the needs and objectives of the Hispanic population and an organized program of outreach to the Hispanic community are becoming vital concerns.

Consider the statistics. There are between 20 and 24 million Hispanic-Americans. Hispanics represent the single largest immigration group in the United States and the fastest growing minority. The United States is already the fourth-largest Spanish-speaking nation in the western hemisphere and should become the third-largest by 1990. In the group of Americans 18 to 20, the

proportion of Spanish-speaking people will grow from 6.5 percent in 1980 to an estimated 21.7 percent in 1990. Though the southwest Sunbelt and the major urban centers of the eastern corridor continue to hold the greatest concentrations of Hispanics, there are sizeable and growing Hispanic communities throughout the Midwest and the Pacific Northwest. By the year 2000, Hispanics will may be America's largest minority, and the Baby Boom generation may have been the last American generation to grow up without a large and influential Spanish minority. What these statistics might mean to American businesses can be summed up in dollars and cents: today's Hispanic population has an annual income conservatively estimated at over \$68 billion.

New Self Awareness

The word *Hispanic* is a recent semantic invention for easy identification of Americans of Spanish descent. However, Hispanics themselves have been part of America's history from its earliest antecedents—ever since the king and queen of Spain agreed to bank-roll Columbus' maiden

voyage. The recent emphasis on this segment of the population is not merely a reflection of their growing numbers, but a result of increased self-awareness among Hispanics themselves. Like the Harlem Renaissance of the Twenties and Thirties, the Hispanic Renaissance reflects a renewed appreciation of Spanish culture and traditions and a concerted effort on the part of the community to sustain and nurture Hispanic heritage. Increased self-awareness for blacks led to black pride and the crusade for civil rights, and the same pattern has held true for Hispanics. Bilingual education, equal job opportunities, economic stability—these are among a number of political and social issues of paramount importance to the Hispanic community. Hispanic leaders across the country have recognized the potential economic and political clout that effective organization can bring to their communities. Politicians in many areas of the country now court the Spanish vote as a necessity for winning elections, and Hispanics themselves are being elected in increasing numbers for both state and national office.



By the year
2000, Hispanics
will may be
America's
largest minority.

MINORITY BUSINESS DEVELOPMENT

As defined by federal regulation, a minority business is one owned at least 51 percent by minority group members. Beyond this simple definition, the services provided by minority vendors are as diverse as the needs of electric utilities. The growth of minority business within the industry reflects not only the quality and reliability of these companies, but also aggressive "Fair Share" practices on the part of utilities.

Utilities are supporting minority business for a number of reasons: to be more socially responsible, to expand their lists of qualified suppliers, to enhance their image among minority groups, to comply with present federal legislation, and to involve minority businesses in the free enterprise system without the need for government intervention. Whatever their motivations, electric utilities are now actively seeking out minority vendors and establishing highly successful minority purchasing programs.

Electric companies usually have at least three different ways of awarding contracts to minority businesses. Minority firms that are capable of competing with majority firms are put on the regular bidders list. Some minority firms are listed for "set-aside" bidding, which allows for competitive bidding by minority firms only. Noncompetitive set-aside orders often are tailored to individual vendors and allocated for training purposes to help minority companies gain the necessary experience and knowledge to move into new areas. Such special programs should develop minority suppliers to the point that they can compete successfully with majority firms. The ultimate goal is to integrate minority firms into the normal procurement process.

Many electric companies are conducting very active outreach efforts to interest minority firms in working with them. One aspect of such programs includes sponsoring local trade shows or opportunity fairs. Niagara Mohawk Power Company, for example, cosponsored a job opportunity fair with over 90 minority firms and 300

purchasing agents in attendance. Such events provide a unique opportunity for minority vendors and purchasing representatives to establish new business relationships or strengthen existing ones.

In addition, many utilities conduct well-funded publicity campaigns using radio and TV commercials, newspaper ads, and insert flyers to help overcome any minority vendor reluctance to approach them for business. New York's Consolidated Edison Company has had one of the most successful minority vendor programs for over a decade. Among other public information techniques, Consolidated Edison has printed posters—many in the language of the target audience—aimed at reassuring minority business enterprises that might be afraid of big company bidding, billing and payment procedures, and, in effect, thus keeping themselves out of the program.

Some utilities are also introducing minority firms to other companies that have existing electric company contracts so that sub-contracting arrangements can be worked out. At Philadelphia Electric Company's Limerick construction site, five different minority vendors are now supplying items to the prime contractor. Due to the diligence of the utility's minority vendor personnel, the net result has been an increase from essentially no minority business at Limerick to over \$200,000 in business to minority firms in 1983.

Electric utilities depend on the communities they serve, and minority businesses are a part of most communities in the United States—a fast growing part. When utilities look at their own best interests, they understand that stimulating and encouraging the growth of *all* firms in their service areas means supporting and developing local minority business enterprises. Developing minority business is good business.

***O*ver the last ten years, greater attention has gone to
informing and educating customers . . .**

A cynical observer might label the new awareness of Hispanics by politicians and business sheer self-interest. However, Domingo Reyes, a Washington-based Hispanic specialist, disagrees. He argues that cultivating a social consciousness is good business, and that the end result is a "trade off" that serves the best interests of all the parties involved. "Historically, Hispanics have been invisible, ignored by both industry and politicians as too small and problematic a group to consider. Today, the growing Spanish minority is too large, and in some places too clamorous, to ignore. Businesses are run and politicians elected to serve the public, and success in either field comes from the ability to put oneself in another person's situation, to imagine how he feels, understand how he thinks, and predict his needs. The result may be a marketing strategy or campaign platform that increases revenues or wins votes, but also, and more importantly, there will be a heightened sensitivity to the concerns of the minority and more effective channels of communication and cooperation between minorities and the mainstream." Reyes adds, "There is nothing new about this strategy: it has been tested in the American marketplace for 200 years."

A Unique Responsibility

Because electric utilities hold a key position within the American marketplace, they have a unique responsibility to confront the challenge of serving their Hispanic customers and,

moreover, to translate that challenge into an opportunity. There is a clear mandate for greater action toward meeting this responsibility. Hispanics make up a significant portion of the industry's customer base, an increasingly important segment both in terms of numbers as Hispanics come to be the nation's largest minority and in terms of dollars of revenue as Hispanics move up the economic scale and use more and more electricity for more and more things.

Utilities provide a service, and they depend on the customers they serve. Over the last ten years, greater attention has gone to informing and educating customers about the nature of the electric utility industry as a means of enlisting their support for efforts such as conservation and alternative energy that the industry believes to be in the public interest. Little of that attention has been focused on the Hispanic community in particular, and as a result, this segment of the population tends to take a dim view of the industry at large.

Carlota Maduro, Director of Community Relations for the Consolidated Edison Company of New York, recalls that, before the company undertook a comprehensive program aimed at its almost two million Hispanic customers, the utility had a severe image problem among this group. "The Hispanic community viewed the utility as monolithic and cold, a distant and disturbing entity with no concern for the individual or the community." Increased numbers of bi-

lingual company representatives, active field service centers in the Hispanic communities throughout New York, information pamphlets in Spanish, and advertisements in the Hispanic media—these and a variety of other projects have successfully changed the image of the utility within the Hispanic community.

A study of Hispanic attitudes toward electric utilities made several years ago found things somewhat less bleak, but no less discouraging. According to the study, the local electric utility essentially had no identity for the Hispanics in its service area. Hispanics perceived the existence of the utility only when the bill had to be paid, not as a part of their day-to-day activities. The Hispanic community at large is not aware of the important connections among energy supply, jobs, economic growth, and productivity. These are crucial issues to the electric utility industry as well as to the national economy; making every segment of the population aware of them should be a major objective of every company.

Economic Plight

Lower-income members of the Hispanic community pose, perhaps, the greatest problems and the greatest responsibility for electric utilities. Barriers of language and culture, as well as the effects of derogatory stereotypes that traditionally curb the mobility of minorities, have tended to detach and alienate Hispanics from the general population.

In the face of rising electric

rates, companies have made a concerted effort to educate customers about conservation and energy efficiency. All too often, however, those customers who most need such information are least likely to have easy access to it. An elderly, Spanish-speaking citizen—one who lives in a ghetto with no landlord support and the meagerest of incomes—would realize the benefits of energy conservation much more so than the average customer. Such a person might regularly face a choice between heat and food.

There are things that local electric companies can do to ease the plight of such customers. A number of companies have established field offices within Hispanic communities and staffed them with professionals fluent in Spanish. David Barron of Southern California Edison describes these centers as "unusually active, with a greater percentage of customers who prefer to pay their bills in cash and a steady stream of concerned individuals coming in to ask questions or seek help." El Paso Electric Company's Star Services program includes special attention to the needs of lower-income Hispanic customers, with bilingual employees serving as liaisons between social agencies and customers in need of financial assistance to meet their electric bills.

Employment Objectives

Jobs are critical for the Hispanic community, which suffers under an unemployment rate well above that of the general population. Reyes maintains that in-

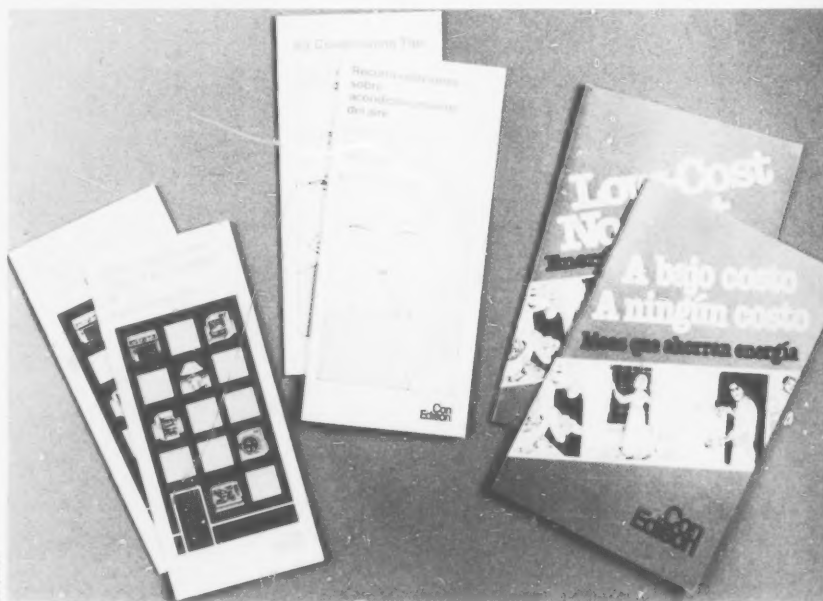
dustry efforts in this area must "go well beyond the usual mandates of equal opportunity." El Paso Electric Company provides a model of what an aggressive affirmative action program can achieve. According to Administrative Vice President Charles Mais, the number of Hispanic employees at El Paso has risen from 35 to 52 percent over the last ten years—the direct result, Mais says, of company philosophy fostered by President E. R. Wall. Mais estimates that over 25 percent of El Paso's managers and supervisors are Hispanic, as well as two of six vice-presidents and a member of the Board of Directors.

Arizona Public Service achieved another first when it organized a training program geared primarily for Hispanics. Along with a local affiliate of the national Council of La Raza, a

major Hispanic organization, the Arizona utility reorganized and implemented a multi-based, six-discipline training program to attract qualified Hispanic applicants from throughout the area.

Supporting minority businesses is another method of helping to improve the economic status of the Hispanic community. Most electric utilities nationwide have set aside a fair market share of their total expenditures for goods and services to go to minority businesses. As a result, a number of minority businesses that have never done business with electric companies are now providing goods and services to the industry. New firms that had not even existed as recently as three years ago are using electric company contracts as a core part of their operations while they ex-

Part of keeping the Hispanic community informed entails translating information and educational materials into Spanish.



Ed Castle

**... *H*ispanic advisors can provide a more complete
personal perception of the Hispanic Population.**

pand into other industries. Some of these minority companies have been growing at an extremely rapid pace based—to a large extent—on the steady and reliable business electric companies have been offering them. (See Sidebar: Minority Business Development.)

Maduro, speaking for Consolidated Edison, says that outreach programs to minority vendors “not only enhance opportunities for Hispanics and other minorities and put much-needed money into their communities, but also assure utilities of a larger and more qualified pool of potential applicants for company contracts.”

Southern California Edison works closely with the Mexican-American Opportunity Foundation that recruits, screens, and prepares applicants for specific jobs within the utility. Robert Hine, Manager of the Equal Opportunity Department, views this hiring effort as “a major factor in Southern California Edison’s outreach program to the Hispanic community,” and he credits such programs with contributing “the goodwill that our company wants to maintain with the Hispanic community.”

Winning Goodwill

Companies can win such goodwill in any number of ways, but the most effective outreach programs usually share four fundamental imperatives.

Know the demographics in your service area. In places such as El Paso—where a past president of the Chamber of Commerce, two

recent mayors, and 64 percent of the population are Hispanic—the Spanish-speaking presence and influence are obvious. In other areas, Hispanics may not be so numerous or highly visible. For example, Laura Reyes Kopec, an attorney for the Detroit Edison Company, argues that Michigan’s Hispanic community has failed to achieve a political and economic strength in proportion to its size. “Gerrymandering, in the recent reapportionment, has segmented the communities in such a way that Hispanics have not been able to exercise any political clout or get their candidates elected. A sizeable Hispanic community exists here, though they have achieved little effective visibility.”

A canvas of customers within any service area could turn up surprising statistics, as could a canvas of the company itself. Locating Hispanics within a utility and enlisting their involvement in the company’s outreach efforts provides a built-in liaison with the Hispanic community at large.

Organize an advisory group to include a cross-section of the Hispanic community. Building effective coalitions with the Hispanic community is one of the important first steps in an effective outreach program. Inviting Hispanic representatives to sit down and talk about the concerns of their constituents almost automatically transforms the image of the electric utility industry from part of the Hispanics’ problems to part of their solution. Involving political, so-

cial, and civic leaders from the Hispanic community in the policy-making process of an electric utility gives them a clearer and more meaningful picture of how and why decisions are made. When the community understands those decisions and what led up to them, Hispanics are much more likely to support those decisions.

No company can serve its customers without a genuine understanding of their needs, and input from Hispanic advisors can provide a more complete and personal perception of the Hispanic population. The advisory group should represent the variety of nationalities—Cuban, Mexican, Puerto Rican, South American—and the diverse range of interests—politics, social services, businesses, the arts—present in the local Hispanic community. The broader the spectrum of the group, the more effective the coalition.

Keep the Hispanic community informed. Translating informational and educational materials into Spanish, securing bilingual company representatives, setting up field offices within the Hispanic community—all such efforts not only earn the goodwill of the Spanish-speaking community, but also ensure that the utility gets its message across to customers in the clearest and most correct manner. According to Maduro, Consolidated Edison of New York has public information or advertising contact with two major daily Hispanic newspapers, four biweekly papers, a monthly magazine, two Spanish television stations, and four

**... utility support for scholarship and training programs is
a vital aspect of community service.**

radio stations. "All of this represents a comprehensive policy to keep in touch with our Spanish-speaking customers, to sustain and improve a relationship that serves both customer and company."

Translating company information and advertising into Spanish is the most obvious and immediate solution for reaching the Hispanic Community. Similarly, companies generally have community service programs already in place, and expanding these programs to include Hispanics specifically offers a convenient and effective first step in serving this segment of the population. Consolidated Edison's Save-a-Watt program provides a case in point. Offering advice and education about conservation techniques for residential customers, the program was unknown in the Hispanic Community until the program materials were translated into Spanish and bilingual representatives were assigned to work in the Hispanic community.

Company efforts to bring its message to the Hispanic community could be served even further by bringing members of the community to the company itself. Tours of utility facilities provide a clearer and more objective picture of an electric company's day-to-day operations, as well as a more thorough understanding of its role throughout the community. Baltimore Gas and Electric organized such a tour of the utility's Calvert Cliffs nuclear facility. The tour succeeded not only in explaining how a nuclear

power plant operates, but, on a larger scale, in fostering an appreciation of the issues and concerns that surround and complicate the nuclear option for electric utilities nationwide.

Get involved in the Hispanic community. Jose Cox, who handles Hispanic relations for the Philadelphia Electric Company, maintains that "the personal touch is paramount when dealing with the Hispanic community." Working through a network of about 50 individuals from the Hispanic community in his service area, Cox stays abreast of the concerns and issues of particular interest to this group. His efforts are not limited to energy and electricity issues, but include whatever social, economic, or political questions the Hispanic community might be facing.

Philadelphia Electric maintains a bilingual customer-service telephone line daily, but Cox himself is also out in the community representing the company at various church, civic, and school meetings. He also makes himself available to deal with particular problems when individual needs arise.

"Business through phone calls and correspondence isn't enough," Cox explains. "A company needs someone with the flexibility to sit down with the customers and deal with their special and individual problems. This is true for all customers, but especially for minorities who might feel alienated from the start. An effort directed at these customers makes the utility accessible to them in a new and

productive way."

Because education is a major goal of the Hispanic community and a means of improving its social and economic standing, utility support for scholarship and training programs is a vital aspect of community service. Similarly, efforts to support and encourage Hispanic endeavors in the arts or civic projects reveals an appreciation on the part of the industry that ethnic pride and cultural traditions should be nurtured. The active involvement of utilities at Hispanic festivals and trade fairs, on both the community and national levels, reveals a similar interest: the quality of life within the Hispanic community. When a utility makes its presence felt and its concern known throughout the community—in schools, churches, social organizations, and homes—it becomes a part of that community and earns its support.

An effective outreach program can go far beyond the particular audience that the program is designed to serve. Efforts can provide a new and effective tool for marketing the product, recruiting capable employees, and serving *all* customers. In meeting the needs of our special audience, the industry needs to show its intent and prove its ability to serve every customer. This effort is not bound by issues, nor can it be limited by a particular mind set. The capability to identify a need and go after a solution will continue to be the determining factor for the future. ■

ETHNIC STEREOTYPING

Ethnic stereotyping is nothing new, and like other minorities, Hispanics have suffered from derogatory depictions of themselves in the popular press, in movies, and on television. Early westerns, for example, characterized Spanish-Americans as slow, lazy peasants or bandits—in contrast to images of the hardworking Anglo-Saxon rancher or the town sheriff in the white hat. The focus of today's media on America's so-called "illegal immigrants" threatens to create another negative stereotype of the Hispanic—one that could imperil future employment opportunities for a group already suffering from double-digit unemployment rates.

The Simpson-Mazzoli Bill passed both House and Senate last year before stalling in committee, and chances are good that it will be introduced again during the next Congressional session. The bill would impose sanctions on any employer who hires illegal or undocumented aliens. According to Charles Kamasaki, Director of Policy Analysis for the National Council of La Raza, such legislation could have potentially devastating implications for the Hispanic community. "In a tight job market like today's, any small factor that influences employee selection is of major consequence," Kamasaki says.

The concern over employer sanctions is essentially two-fold. First, Kamasaki says, such sanctions provide "a convenient pretext for those who, for whatever reasons, *want* to discriminate." A law of this kind would give such people "an easy excuse to reject applicants for all kinds of flimsy reasons." An employer could argue, for example, that he or she suspected a social security card of being forged, and the chances of convicting such employers of job discrimination would be very slim. Secondly, even employers not predisposed to discriminate might choose to "play it safe" by avoiding applicants who fit their ideas of "immigrant stereotypes." Kamasaki explains that any number of variables (dress, skin color, accent, etc.) could determine such decisions.

"Job discrimination could result from a wide variety of scenarios given such legislation," Kamasaki argues. "There are a surprising number of people, for example, who don't understand the difference between immigrants and American citizens of ethnic origin.

Discrimination can take a variety of forms. For instance, an employer could make a rational decision to limit the hiring of minority employees, fearing that a large percentage of minority workers could trigger a raid by the national immigration service. (Such raids are becoming increasingly common in some parts of the country.) "No employer, not even an honest one, wants to invite such action," Kamasaki explains. "By limiting the percentage of minorities in the workforce, an employer reduces the chances of such government intervention." On a less rational basis, employers might scrutinize applicants who fit immigrant stereotypes more harshly than other applicants.

According to Kamasaki, Americans in general have never been accepting of immigrants, and U.S. immigration policies have been characterized consistently "by a not-so-subtle racism." Policies set early in the century and still enforced established quotas that favored Europeans and discouraged Asians and Latin Americans. The proponents of such legislation argued the quotas on racial grounds. The recent concern over immigration coincides with an unstable economic scenario—a coincidence that does not surprise Kamasaki or other analysts.

There is little evidence to support concern that illegal aliens are draining the national economy or taking jobs away from American citizens. "Studies from any number of sources attest to the fact that immigrant groups, legal or illegal, tend to under-utilize social service programs," Kamasaki explains. "For example, of Hispanics eligible for housing assistance, the percentage actually taking advantage of this assistance is far lower than those of other minority groups, such as blacks or women.

FINANCIAL REVIEW

EARNINGS PER SHARE UP 11.5 PERCENT; OPERATING REVENUES AT \$28 BILLION IN SECOND QUARTER

A 13.0 percent increase in electric operating revenues during the second quarter of 1984 drove earnings for the period to \$0.68 per share, an 11.5 percent increase over the \$0.61 registered during the second quarter of 1983. This year's economic recovery and last year's cooler-than-normal second quarter account for the increased sales and the attendant revenue growth.

For the quarter ended June 30, 1984, electric operating revenues were \$28.0 billion compared to \$24.8 billion for the quarter ended June 30, 1983. For the twelve months ended June 30, 1984, electric operating revenues were \$114.8 billion compared to \$102.6 billion one year earlier, an increase of 11.9 percent. For the twelve months ended June 30, 1984, earnings per share increased 17.2 percent to \$3.21 from \$2.74 one year earlier. The return on average common equity increased to 15.3 percent for the year ended June 30, 1984, from 15.1 percent for the year ended March 31, 1984.

Viewed against comparable periods for the year earlier, electric operating expenses increased at a slightly slower rate than electric operating revenues during both the quarter

and the year ended June 30, 1984, despite the fact that fuel expenses increased by 11.5 percent during the second quarter of 1984, the greatest quarter-to-comparable-quarter increase since the fourth quarter of 1981. For the twelve months ended June 30, 1984, fuel expenses increased 6.4 percent to \$37.1 billion. Still, for the twelve months ended June 30, 1984, the electric operating ratio (electric operating expenses to electric operating revenues) declined to 80.9 percent from 81.7 percent. For the second quarter of 1984, the electric operating ratio was 82.0 percent, down from 82.2 percent in the second quarter of 1983.

AFUDC, CWIP Slow

Total allowance for funds used during construction (AFUDC) increased only 2.4 percent during the second quarter of 1984, compared to the second quarter of 1983, and accounted for 58.7 percent of the net income available for common stock shareholders compared to 68.9 percent one year earlier. For the twelve months ended June 30, 1984, AFUDC increased 9.0 percent, accounting for 50.8 percent of the net income available for common, down from 59.4 percent one year earlier.

The low rate of increase in total AFUDC is attributable to several factors, including the completion of several large construction projects. In fact, construction work in progress (CWIP) increased only 5.4 per-

cent from June 30, 1983, to June 30, 1984, compared to an 18.4 percent increase from year-end 1981 to year-end 1982, while plant in service (net utility plant less construction work in progress) increased 10.3 percent to \$203 billion.

Interest Coverages Improve

In response to improved earnings and declining interest rates, pre-tax interest coverages—the ratio of operating income, including income taxes and AFUDC, to debt charges—continued to improve. During the three months ended June 30, 1984, interest coverage was 2.81 times compared to 2.63 times during the second quarter of 1983. During the twelve months ended June 30, 1984, interest coverage was 3.16 times compared to 2.79 times one year earlier.

The improved interest coverage averages disguise the continuing financial difficulties faced by several companies. Through the second quarter of 1984, Moody's increased its ratings on the senior debt securities of 13 electric utilities and lowered the ratings on 24. However, during the 1984 third quarter, Moody's reported 13 upgradings and only 2 downgradings—further indication that the industry's financial condition as a whole is improving.

R E V I E W S

Table 1
Investor-Owned Electric Utility Industry Statement of Income
For periods ending June 30, 1984 and 1983 (Unaudited) (Millions of Dollars)

	Quarter Ending June 30,			Year Ending June 30,		
	1984	1983	% Change	1984	1983	% Change
Total Electric Operating Revenues	\$27,998	\$24,772	13.0	\$114,798	\$102,557	11.9
Electric Operating Expenses						
Fuel	\$8,948	\$8,026	11.5	\$37,074	\$34,835	6.4
Other Operation & Maintenance	7,319	6,739	8.6	27,836	25,753	8.1
Depreciation & Amortization	2,280	2,004	13.8	8,693	7,829	11.0
Taxes Other Than Income Taxes	2,078	1,865	11.4	8,245	7,400	11.4
Income Taxes (Federal & Other)	564	121	366.1	4,057	2,844	42.7
Provision for Deferred Income Taxes	1,235	1,177	4.9	4,956	3,072	61.3
Investment Tax Credit Adjustment, Net	535	436	22.7	2,022	2,060	(1.8)
Total Electric Operating Expenses	\$22,959	\$20,368	12.7	\$92,883	\$83,793	10.9
Electric Operating Income	\$5,039	\$4,404	14.4	\$21,915	\$18,764	16.8
Other Utility Operating Income	326	282	15.6	1,438	1,040	38.3
Total Utility Operating Income	\$5,365	\$4,686	14.5	\$23,353	\$19,804	17.9
Other Income	468	379	23.5	1,964	1,434	37.0
Allowance for Other Funds Used During Construction	1,281	1,254	2.2	5,165	4,599	12.3
Total Income Before Interest Charges	\$7,114	\$6,319	12.6	\$30,482	\$25,837	18.0
Interest on Long Term Debt	\$3,368	\$3,081	9.3	13,031	\$11,987	8.7
Other Interest Expenses & Charges	283	289	(2.1)	1,140	1,252	(9.0)
Allowance for Borrowed Funds Used During Construction	(817)	(795)	2.8	(3,211)	(3,083)	4.2
Net Interest Expenses & Charges	\$2,834	\$2,575	10.1	\$10,960	\$10,156	7.9
Net Income Before Extraordinary Items	\$4,280	\$3,744	14.3	\$19,522	\$15,681	24.5
Extraordinary Items	20	(74)	NM	(164)	(68)	141.2
Net Income	\$4,300	\$3,670	17.2	\$19,358	\$15,613	24.0
Preferred Dividends Declared	727	694	4.8	2,869	2,675	7.3
Net Income Available for Common	\$3,573	\$2,976	20.1	\$16,489	\$12,938	27.5
Common Dividends Declared	2,695	2,520	6.9	10,698	9,548	12.0
Retained Earnings	\$878	\$456	92.5	\$5,791	\$3,390	70.8
Avg. Shares Outstanding	5,265	4,894	7.6	\$5,132	\$4,728	8.5
Earnings Per Share*	\$0.68	\$0.61	11.5	\$3.21	\$2.74	17.2
Common Dividends Per Share*	\$0.51	\$0.51	0.0	\$2.08	\$2.02	3.0

*Based on average shares outstanding as reported to EEI by survey respondents and adjusted for stock splits.

NOTE: Revenues are adjusted for intra-industry sales for resale of electricity.

NM: Not Meaningful

R E V I E W S

Table 2
Investor-Owned Electric Utility Industry Balance Sheet
As of June 30, 1984 and 1983 (Unaudited) (Millions of Dollars)

Assets	1984	1983	% Change
Utility Plant*			
Utility Plant (Including Nuclear Fuel)	\$289,791	\$262,060	10.6
Less Accumulated Depreciation	81,819	73,997	10.6
Less Property-Related Accumulated Deferred Income Taxes	4,606	3,641	26.5
Total	\$203,366	\$184,422	10.3
Construction Work in Progress	101,282	96,128	5.4
Net Utility Plant	\$304,648	\$280,550	8.6
Investments	7,209	6,133	17.5
Current Assets	33,700	30,943	8.9
Deferred Debits	13,523	8,024	68.5
Total Assets	\$359,080	\$325,650	10.3
Capitalization & Liabilities			
Capitalization			
Common Stock	\$76,732	\$70,526	8.8
Retained Earnings	38,121	32,370	17.8
Preferred Stock	31,823	30,661	3.8
Long-Term Debt	136,930	126,757	8.0
Total Capitalization	\$283,606	\$260,314	8.9
Current Liabilities			
Short-Term Debt	\$6,126	\$5,940	3.1
Long-Term Debt Due Currently	3,878	3,822	1.5
Other Current Liabilities	25,105	22,270	12.7
Total Current Liabilities	\$35,109	\$32,032	9.6
Deferred Credits			
Accumulated Deferred Income Taxes	\$20,379	\$16,459	23.8
Accumulated Deferred Investment Tax Credits	13,223	11,146	18.6
Other Deferred Credits	6,763	5,699	18.7
Total Deferred Credits	\$40,365	\$33,304	21.2
Total Capitalization & Liabilities	\$359,080	\$325,650	10.3

* Includes other utility plant of combination gas and electric companies.

		TECHNOLOGY REVIEW
Retained Earnings Improve The growth in additions to retained earnings over the year ended June 30, 1984, resulted primarily from improved earnings performance. During the twelve months ended June 30, 1984, annual additions to retained earnings increased 70.8 percent over the year ended June 30, 1983. As a result, accumulated retained earnings continued a favorable trend that began in the third quarter of 1983 whereby they became the fastest growing element in the industry's capitalization structure. At June 30, 1984, accumulated retained earnings totalled \$38.1 billion, up 17.8 percent from one year earlier and accounting for 13.4 percent of the industry's total capitalization, a full percentage point higher than a year before.	1984, increased 8.5 percent to 5.1 billion shares. However, for the quarter ended June 30, 1984, shares outstanding increased 7.6 percent, indicating a slowing in the rate of issuance of new equity.	LIGHTING THE FUTURE Lighting is the manifestation of electricity.
Preferred Stock, Long-term Debt Decrease as Percent of Total Capitalization Preferred stock, which increased 3.8 percent to \$31.8 billion from June 30, 1983, to June 30, 1984, dropped to 11.2 percent of total capitalization from 11.8 percent. Long-term debt increased 8.0 percent to \$136.9 billion, but declined to 48.3 percent of total capitalization from 48.7 percent one year earlier. Common stock remained at 27.1 percent of capitalization while increasing 8.8 percent to \$76.7 billion. The average number of common equity shares outstanding during the year ended June 30,	Return on Common 15.3 Percent The return on average common equity for the twelve months ended June 30, 1984, was 15.3 percent. Edison Electric Institute has estimated that the average return granted by state commissions in rate cases decided in the second quarter was 14.9 percent, down from the 15.1 percent averaged in cases decided in the previous quarter. The lower return allowed in cases decided in the second quarter reflects recently declining interest rates. Given the increased sales, moderating fuel costs, and the gain in earnings from non-utility operations, the industry's return on earnings during the one-year period was somewhat higher than the allowed return in cases decided in the last quarter of the year.	Other energy sources can heat our buildings, cook our food, propel our vehicles, and run our machinery, but nothing but electricity can produce the light that people command with the flip of the switch. "If you are like most people, you probably take lighting for granted," explains Steve Pertusiello, Project Manager for lighting research at the Electric Power Research Institute (EPRI) in Palo Alto, California. "However, lighting—society's earliest and most basic use of electricity—has been undergoing major changes in recent years."
	Tables 1 and 2 are based on unaudited reports received from electric utilities. The utilities account for about 95 percent of the industry's revenue from sales to ultimate customers and 94 percent of the industry's total assets. The data was expanded to represent the entire industry. ■	Most of the advances are designed either to reduce energy costs or to improve productivity in the workplace, Pertusiello adds.
	Contributed by the Finance Department of Edison Electric Institute.	In the United States, lighting uses some 420 billion kilowatt-hours—about 20 percent—of the electricity generated each year. In the commercial sector, lighting can account for as much as 50 percent of a building's load. This percentage can be boosted even further by ventilating and air conditioning systems used to remove excess heat caused by lighting. With an eye on reducing energy demands caused by lighting, EPRI's Energy Management and Utilization Division is concentrating its research on lighting technology. Several projects are currently underway, one of the most im-

portant of which is scheduled for completion in 1985. The project will culminate in the publication of a handbook for utility representatives that addresses commercial and industrial lighting applications. The handbook will cover changes in today's lighting load, lighting end-use characteristics of commercial buildings, and new lighting technologies and evaluation methods.

EPRI is also developing control strategies in photo-sensors to dim fluorescent lights in daylight. Such strategies, quite different from the traditional ones useful in older buildings, will help conserve energy in the growing number of new buildings that incorporate architectural features to optimize the availability of sunlight.

Other EPRI lighting projects entail:

- Addressing the visual effectiveness of daylighting a building;
- Evaluating the energy-conserving potential of solid state ballasts for fluorescent and high-intensity discharge lamps;
- Reviewing and testing design data and methods for analyzing the interaction of lighting and HVAC systems; and
- Evaluating the photometric and electric characteristics of fluorescent fixtures retrofit-

ted with a mirror film, such as silver or aluminum.

Other recent developments in the field of lighting have emphasized how it effects productivity in the workplace. Traditional designs using ceiling illumination are giving way to designs that put the lighting where workers need it. Called "task lighting," the approach also defines the amount of light necessary for a particular task.

For example, general overhead office lighting may no longer be efficient when horizontal tasks like reading a report placed on a desktop are replaced by vertical tasks like reading the same report as it scrolls across a computer screen.

All of these projects hold promise for reducing business' lighting costs, and that's good news for many electric utilities because lower lighting demand can shave peak load, reducing their need to build costly generating plants.

Specific task lighting that illuminates highly visual jobs, such as silicon wafer fabrication, also may displace general industrial fluorescent lighting.

"Consumers need to suit, lighting to the task," stresses EPRI's Pertusiello. For precision assembly of small parts, high-technology industries require high lighting levels and directional lighting quite different from traditional room illumination. Robot-manned production lines, for example, may require no lighting.

Other advancements are being made in lighting fixtures and lamps, the most basic lighting equipment. For instance, high intensity discharge (HID) lamps, about six times more efficient than incandescent lamps, are edging their way into commercial office markets.

Because of their poor color quality, HID lamps of 450-1000 watts traditionally have been relegated to lighting large outdoor areas such as streets and parking lots. But designs for HID lamps of 150 watts or less have been developed with proper color correction for indoor use and are now accepted by customers.

Advances also will change residential lighting in the future. Incandescent lamps that deliver more light per watt than conventional incandescents already have been developed as the result of improved filaments and bulbs. However, because lighting accounts for only about 10 percent of a residential energy bill, lighting advances in this sector have been and will continue to be made more slowly than in the commercial and industrial sectors. ■

Contributed by the Information and Publishing Services Department of Edison Electric Institute.

BOOK REVIEW

SELECTED AUDIOVISUAL MATERIALS PRODUCED BY THE UNITED STATES GOVERNMENT

General Services Administration,
National Archives and Records Service,
and National Audio-Visual Center, 1984
Washington, D.C. 186 pp.

By Hal Dunham

There's an old saw about the dictionary being interesting reading, but short on plot. The same might be said about the U.S. government's 1984 catalogue of audiovisual materials, with one difference. For those who care to follow up, this 186-page volume could have a happy ending.

"Hollywood on the Potomac," is a nickname often given the nation's capital, for reasons other than its sometimes glamorous embassy receptions and wonderland politics. Washington, D.C., happens to be one of the world's busiest audiovisual production centers.

The networks all have studios here. Diversification of the area's economy has brought in many smokeless industries that produce films, video, and slide programs for purposes ranging from employee training and public information to sales pitches for their products. The area is headquarters for Marriott, MCI, Comsat, Public Broadcasting, Fairchild-Hiller, Martin-Marietta, and other companies. The U.S. Chamber of Commerce has a wonderful \$4 million video/teleconferencing

facility that is kept busy both with the Chamber's BizNet programming and rentals to other producers.

Washington trade associations produce a multitude of audio-visual programs, from slide shows explaining their industry's views of political issues to sometimes exceptionally good education films. Producers of the real Hollywood product—the entertainment films—find the city attractive, too, and eleven major productions will be filmed here in 1984.

Moreover, the city is host each year to the CINE Showcase, one of the nation's most important gatherings of film folk. During the Council on International Non-theatrical Events three-day show, (December 5-7 this year), winners of foreign film festivals collect their honors from ambassadors of the awarding countries and producers and sponsors of non-theatrical productions receive the CINE Golden Eagle for works judged to be "of excellence." Award of the Golden Eagle makes the films eligible for the Academy Awards and for foreign film festivals, so there is a good deal of prestige associated with it.

But it is the government that provides most of the audio-visual action, as the 3,000 programs listed in this year's catalogue testify.

It was government, not private industry, that took advantage of Edison's technology and produced the first sponsored film for public distribu-

tion; that is, a film financed by what today is called a "special interest" and intended for showing before civic groups and other audiences. The year was 1919, and the sponsor was the U.S. Department of Agriculture.

That historical note aside, a few words of caution are necessary about government films in general. Government films do the job for which they were intended. Most often, the purpose is sound and above-board. In other cases, propaganda or at least political advantage is the intent.

By way of illustrating propaganda or political advantage, one might have a different impression today of the government epic, "The Battle of Russia," for example, than was intended when it was produced in 1944, and investor-owned utilities might feel testy about the thrust of the Department of Agriculture's production, "Power and the Land," released in 1940 to tell the story of forming an electric cooperative.

There are other cautions about working with government film. Policy dictates the sponsoring department accept the low bid—not always a path to quality or creativity. And for audiovisual departments that want to use footage from government films in their own productions, there is a question of

		REGULATORY REVIEW
copyright clearance. While the government cannot copyright its own product, many audio-visuals are purchased by government from independent producers and the government's deal may not cover full clearances. The rule is to ask the National AudioVisual Center before using (301/763-1896). For electric companies, government film libraries are an extensive resource of training programs as well as footage to incorporate in their own programs. A section on "electricity," for example, covers circuits, equipment, motors, and theory—more than 100 programs in all. And there are other sections, as extensive, covering "engineering" (including electrical, energy conservation, solar, wind); "natural resources" (environmental protection, fossil fuels, geothermal); and extensive listings under "environment" and "pollution." Electric companies will find the most valuable sources of useable audio-visuals, especially film and video tape, are the Corps of Engineers, National Bureau of Standards, National Science Foundation, Environmental Protection Agency, and the National Oceanic and Atmospheric Administration. There is but one federal law specifically about film. That	unique statute decrees that government should caption film for the deaf. Nevertheless, through the years government has been a major film producer, and more than 10,000 titles, not listed in the catalogue, are available from the National AudioVisual Center as are some 22 supplemental catalogues. Organization of the catalogue is somewhat similar to that employed by EEI's Audio-Visual Exchange Network, except abstracts describing the program are listed alphabetically and are not retrievable on-line by users. Nor does the catalogue cite a contact person within the agencies and departments, or contain the key-word cross-references unique to the EEI Exchange. Still, there should be a "happy ending" for many who spend some time with this plotless volume. It is a handy resource for training departments, educational services representatives, audio-visual and television departments, speakers bureaus, and others. And it's free from the National AudioVisual Center, National Archives and Records Services, General Services Administration, Information Services/PN, Washington, D.C. 20409. ■ Hal Dunham is Director of Special Projects and Member Company Services for Edison Electric Institute and a member of the Board of Directors of the Council on International Non-theatrical Events.	UTILITIES PETITION NRC ON WASTE CLASSIFICATION With the increasing costs of disposing of low-level radioactive wastes, and the possibility of future limitations on access to disposal facilities, there is a growing interest in identifying thresholds of contamination beneath which certain wastes could be disposed of safely without regard to their radioactive content. For example, the Utility Nuclear Waste Management Group (UNWVG), in conjunction with the Edison Electric Institute (EEI), recently petitioned the Nuclear Regulatory Commission (NRC) for the issuance of a regulation governing the disposal of low-level radioactively contaminated waste oil from nuclear power plants. Essentially, the petition requests that a regulation be issued setting forth radionuclide concentrations below regulatory concern. "Adoption of such a rule," according to UNWVG Senior Program Scientist Russell Stanford, "Would provide for the more efficient disposal of slightly contaminated waste oil while, at the same time, provide adequate protection for both the environment and public health and safety."

Radioactive waste that is not classified as high-level waste, transuranic waste, spent nuclear fuel, or tailings is classified as low-level waste, and is subject to the NRC's *Licensing Requirements for Land Disposal of Radioactive Waste* (10 CFR Part 61). This rule requires, among other things, that low-level waste be classified according to radionuclide concentration, that it conform with waste form criteria intended to ensure stability, and that it comply with packaging and shipping manifest and disposal facility requirements.

The NRC has recognized that development of standards for disposing of certain categories of waste by less restrictive means would be beneficial from the perspective of both health and safety and utilization of resources. Noting that such standards would reduce disposal and long-term site maintenance costs, conserve disposal facility space for waste with higher activity levels, enhance overall disposal site stability, and tend to reduce ground water migration impacts, the NRC expressed its willingness to accept petitions for rulemaking requesting that certain waste streams be considered below regulatory concern.

In a few narrowly defined instances, the NRC already has

authorized disposal of certain types of waste without regard to radioactive materials content. For example, it has authorized the disposal of liquid scintillation media and animal tissue containing no greater than 0.5 microcuries per gram of tritium or carbon-14 without regard to their radioactivity. And, on a case-by-case basis, the NRC has approved alternative methods of disposing of certain very low-level radioactively contaminated waste at several nuclear plants.

Currently, the only generally approved disposal method for low-level radioactively contaminated waste oil involves absorption or solidification of, transportation to, and burial at a licensed disposal facility. "Disposal of waste oil in this manner," according to Stanford, "is costly, inconsistent with efforts to reduce waste volumes, and represents an inefficient use of NRC, licensee and burial site resources."

Under the EEI/UNWGM proposal to the NRC, only waste oil with concentrations that would result in an exposure level greater than one millirem (mrem) per year to the most exposed person would be

considered of regulatory concern and would require disposal pursuant to the NRC land disposal rule. Waste oil with lower concentration levels could be disposed of by any of a number of alternative methods including landfill burial and incineration.

The one mrem per year standard was selected on the basis of a detailed study prepared for UNWGM by OTHA, Inc., and, according to Stanford, is consistent with current regulatory policies and practices. The OTHA study utilized data on generation rates and on radionuclide content and concentrations gathered from 15 operating plant sites with 29 separate nuclear power plant units. A number of specific disposal methods were considered in order to determine under what circumstances waste oil could be disposed of without exceeding the one mrem standard. The study concluded that waste oil could be disposed of economically by some or all of the disposal methods considered without exceeding the standard.

Under the proposed rule, limiting gross activity levels for each disposal method would be established such that up to 1000 gallons per year of waste oil could be disposed of at a plant site without exceeding

STATISTICAL REVIEW		
the one mrem limit. In addition, disposal of more than 1000 gallons per year would be allowed under certain conditions, dependent upon the disposal method and the concentration of specific nuclides. The EEI/UNWMG rulemaking petition recently has been docketed with the NRC, and action on the petition could come as early as 1985. In addition to the EEI/UNWMG petition on waste oil, the Atomic Industrial Forum and its National Environmental Studies Project have initiated a study of other wastes that might be considered below regulatory concern. Intended to provide technical support for additional rulemaking petitions as well as for individual utilities, the study will cover pressurized water reactor (PWR) clean-up resins; PWR condensate polishing regenerative wastes; make-up water treatment resins; charcoal from HVAC filters; contaminated soils; sanitary sludge; and dry active waste. <i>EP</i> Contributed by the Information and Publishing Services Department of Edison Electric Institute.	NUCLEAR AND COAL EQUAL IN 1983 GENERATING COSTS Nuclear and coal electrical generating costs were dead even in 1983 at 3.5 cents per kilowatt-hour (kwh) while oil-fired electricity cost 6.4 cents per kwh according to a recent Atomic Industrial Forum (AIF) survey of United States nuclear utilities. Coal costs remained level in 1983, despite higher fuel prices, due to a sharply higher capacity factor for coal-fired generating plants. The coal capacity factor rose from 54.1 percent in 1982 to 58.6 percent last year, while the comparable nuclear figure declined from 60.5 percent to 59.5 percent. Meanwhile, nuclear fuel costs rose slightly last year when the Department of Energy began collection of the one mil (0.1¢) per kwh user charge under provisions of the Nuclear Waste Policy Act. The surcharge will finance the disposal of high-level civilian nuclear waste. The AIF survey showed marked improvement over the previous year in the forced outage rate for nuclear power plants, which fell from 12.2 percent to 10.1 percent. However, there was a simultaneous drop in the plant availability factor, which fell from 69.4 percent to 66.1 percent.	Taken together, these figures reflect the extension of routine maintenance outages on nuclear plants for additional work. Last year that work included implementation of new federal rules on equipment qualification as well as replacement of steam generators and recirculation piping in several plants. "Nuclear electricity, despite extraordinary pressures forcing its costs upward, nevertheless remains competitive with coal," AIF President Carl Walske declared. "However, it must be noted that the average U.S. nuclear capacity factor is not as high as in some countries abroad. Current improvement programs in this country will raise capacity factors and exert a downward pressure on costs." The AIF survey, which categorizes plants by year of initial operation, also demonstrates that extended construction times and delays in completion of many of the newer nuclear power plants have had a telling effect on the capital cost factor. (Average construction time for nuclear plants more than doubled from 5 years in 1970 to approximately 12 in 1980.)

R E V I E W S

Table 1
U.S. Average Electrical Generating Costs and Power Plant Performance, 1983
For units entering commercial service in the years listed¹

Nuclear										
Initial Year of Commercial Operation	Number of Units	Generating Capacity (MWe)	Total ² Generating Cost (¢/KWh)	Capital Cost (¢/KWh)	Fuel Cost (¢/KWh)	D & M Cost (¢/KWh)	Other ³ Cost (¢/KWh)	Capacity ⁴ Factor (%)	Availability ⁵ Factor (%)	Forced ⁶ Outage Rate (%)
1970	4	2,368	2.4	1.0	0.8	0.6	0.0	67.3	75.6	5.4
1971	4	2,694	2.7	1.1	0.7	0.9	0.0	65.2	76.3	6.0
1972	8	5,458	2.5	1.0	0.7	0.7	0.1	73.5	75.1	6.4
1973	7	5,167	2.5	1.2	0.6	0.6	0.1	64.5	72.1	3.5
1974	11	8,714	2.8	1.2	0.7	0.8	0.1	58.7	65.3	10.8
1975	8	6,826	3.6	1.8	0.6	1.1	0.1	53.7	59.8	6.6
1976	4	3,649	6.4	3.8	0.8	1.8	0.0	30.7	37.2	30.1
1977	7	5,851	4.2	2.3	0.7	1.1	0.1	64.4	66.6	11.4
1978	2	1,977	2.9	2.1	0.5	0.3	0.0	71.2	74.9	18.5
1979	1	757	4.7	2.6	0.6	1.4	0.1	56.2	65.9	16.7
1980	2	1,748	3.2	2.0	0.7	0.5	0.0	66.7	71.0	11.4
1981	4	4,079	5.5	3.8	0.6	1.0	0.1	47.9	54.6	21.2
1982	1	1,128	3.3	2.3	0.5	0.5	0.0	62.3	65.4	11.9
Totals or Weighted Averages	63	50,416	3.5	1.8	0.7	0.9	0.1	59.5	66.1	10.1
Coal										
1970	4	1,805	2.8	0.8	1.7	0.3	0.0	62.6	82.3	6.1
1971	8	4,846	3.2	1.0	1.9	0.3	0.0	55.3	77.1	8.4
1972	6	3,651	3.3	0.9	2.1	0.3	0.0	61.1	81.3	10.4
1973	6	5,388	2.9	0.8	1.9	0.2	0.0	60.6	81.9	10.1
1974	5	4,301	2.9	0.7	2.0	0.2	0.0	62.1	90.0	5.3
1975	6	4,619	3.1	0.8	2.1	0.2	0.0	62.5	87.8	6.2
1976	3	2,272	3.5	1.3	1.8	0.4	0.0	61.9	81.9	7.4
1977	2	1,410	3.9	1.5	1.8	0.6	0.0	57.1	81.3	3.7
1978	4	2,217	3.6	1.4	2.0	0.2	0.0	59.0	86.0	3.6
1979	3	1,284	3.5	1.8	1.3	0.3	0.1	44.2	81.1	2.1
1980	6	4,457	5.1	2.6	2.1	0.4	0.0	52.9	84.2	6.5
1981	2	691	4.0	1.9	1.9	0.2	0.0	57.1	78.6	1.3
1982	3	2,030	4.9	2.2	2.5	0.2	0.0	55.2	86.6	3.3
Totals or Weighted Averages	58	38,971	3.5	1.2	2.0	0.3	0.0	58.6	83.1	6.6
Oil										
1970	0	—	—	—	—	—	—	—	—	—
1971	1	410	7.6	1.6	5.1	0.9	0.0	22.3	68.3	29.6
1972	1	401	7.0	1.8	4.9	0.3	0.0	36.8	82.9	3.0
1973	1	400	10.1	3.0	6.4	0.7	0.0	13.3	93.9	7.6
1974	4	1,377	5.6	1.2	4.2	0.1	0.0	47.9	88.6	1.9
1975	1	565	5.9	1.5	4.1	0.3	0.0	58.0	75.6	8.2
1976	1	783	6.0	1.4	4.4	0.2	0.0	35.2	89.6	7.8
1977	2	1,608	6.4	1.3	4.9	0.3	0.0	38.9	88.8	6.6
1978	1	506	5.1	1.0	4.0	0.1	0.0	43.4	92.5	2.7
1979	0	—	—	—	—	—	—	—	—	—
1980	1	783	8.9	3.9	4.8	0.2	0.0	31.0	96.5	1.9
1981	1	783	8.4	3.5	4.7	0.2	0.0	27.3	78.3	9.8
1982	0	—	—	—	—	—	—	—	—	—
Totals or Weighted Averages	14	7,616	6.4	1.7	4.5	0.2	0.0	37.5	86.4	5.6

NOTES

¹ Base-load units of 400 MWe or larger capacity, entering commercial operation from 1970 through 1982 and in commercial service during all of 1983. All utilities having at least a 10 per cent interest in one or more nuclear units are included.

² Total cost includes capital, fuel, operation and maintenance, carrying charges, insurance and taxes as well as costs incurred while any unit was not on line but remained in commercial service during the year. For nuclear units, "total cost" includes present allowances for decommissioning and waste management, where permitted by state regulatory authorities.

³ Other cost represents generating expenses not recorded by the reporting utilities in capital, fuel or operation and maintenance categories.

⁴ Capacity factor is the percentage of electricity produced compared with the amount which could have been produced at continuous full power.

⁵ Availability factor is the percentage of time during which the unit was capable of producing power at some level, whether or not it was actually in service.

⁶ Forced outage rate is the percentage of time during which the unit was not available to produce power when required for service, due to component or other failure.

Table 2
Power Plant Units Included in the AIF 1983 Economic Survey
By Initial Year of Commercial Operation

	Nuclear	Coal	Oil
1970	Dresden 2 Ginna Millstone 1 Point Beach 1	Avon Lake 9 Cheswick 1 Conemaugh 1 Stuart 2	—
1971	Dresden 3 Monticello Palisades Robinson 2	Amos 1 Barry 5 Conemaugh 2 Mitchell 1 Mitchell 2 Sammis 7 Stuart 1	Montville 6
1972	Maine Yankee Pilgrim 1 Point Beach 2 Quad Cities 1 Quad Cities 2 Surry 1 Turkey Point 3 Vermont Yankee	Amos 2 Bowen 2 Eastlake 5 Gorgas 10 Powerton 5 Stuart 3	Bowline Point 1
1973	Fort Calhoun 1 Indian Point 2 Oconee 1 Prairie Island 1 Surry 2 Turkey Point 4 Zion 1	Amos 3 Cumberland 1 Cumberland 2 Mt. Storm 3 Roxboro 3	Middletown 4
1974	Arkansas Nuclear One 1 Browns Ferry 1 Cooper Duane Arnold Kewaunee Oconee 2 Oconee 3 Peach Bottom 2 Peach Bottom 3 Prairie Island 2 Zion 2	Belews Creek 1 Bowen 3 Conesville 4 Gaston 5 Gavin 1 Stuart 4	Anclote 1 Bowline Point 2 Roseton 1 Roseton 2
1975	Browns Ferry 2 Brunswick 2 Calvert Cliffs 1 Cook 1 Fitzpatrick Hatch 1 Millstone 2 Rancho Seco	Belews Creek 2 Bowen 4 Columbia 1 Gavin 2 Neal 3 Powerton 6	Mystic 7
1976	Beaver Valley 1 Indian Point 3 St. Lucie 1 Trojan	Mansfield 1 Sherburne County 1 Wansley 1	Manatee 1
1977	Browns Ferry 3 Brunswick 1 Calvert Cliffs 2 Crystal River 3 Davis-Besse 1 Farley 1 Salem 1	Mansfield 2 Sherburne County 2	Manatee 2 Poletti

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	Nuclear	Coal	Oil
1978	Cook 2 North Anna 1	Columbia 2 Council Bluffs 3 Miller 1 Wansley 2	Ancote 2
1979	Hatch 2	Gentleman 1 Neal 4 Nebraska City 1	—
1980	Arkansas Nuclear One 2 North Anna 2	Boardman Campbell 3 Mansfield 3 Mountaineer 1 Roxboro 4 White Bluff 1	Martin 1
1981	Farley 2 Salem 2 Sequoyah 1 McGuire 1	Ottumwa 1 White Bluff 2	Martin 2
1982	Sequoyah 2	Crystal River 4 Gentleman 2 Scherer 1	—

"As our surveys demonstrate, and the experience of our overseas neighbors underscores, if nuclear power plants are built in less than eight years they are the most economic producers of thermal electricity in the world," Walske said.

"The two lowest-cost energy sources available for future electrical growth in the United States are coal and nuclear," Walske continued. "Healthy competition between them remains the best hope for reasonable electricity costs in the future."

Nuclear energy provided approximately 13 percent of

U.S. electricity during 1983 while coal supplied nearly 55 percent.

This year's AIF survey of nuclear utilities included data from 63 operating nuclear plants, 58 coal plants, and 14 oil plants that began commercial operation in 1970 or later and were in service for all of 1983.

Total cost figures include capital expense, fuel, waste disposal, operations and maintenance, and, in the case of most nuclear plants, provision for decommissioning. Conducted annually since 1970, the survey involved 43 utilities, each of which has at least a 10 percent interest in one nuclear unit, and includes their experience with all base-load nuclear,

coal, and oil plants of 400 megawatts or more. Survey figures are calculated from data provided by utilities, based on actual experience.

Tables 1 and 2 list, respectively, a detailed breakdown by year of initial service and cost component for each unit surveyed and the plants surveyed for 1983 performance.

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G U I D E L I N E S

GUIDELINES FOR
AVAILABILITY ENGINEERING
AS APPLIED TO
NEW PLANT DESIGN

GUIDELINES FOR
AVAILABILITY ENGINEERING
AS APPLIED TO
OPERATING PLANTS

Prepared by members of the Availability Engineering Task Force of Edison Electric Institute, *Guidelines For Availability Engineering*, a 736-page, two-volume publication documents the overall logic of power plant availability engineering in a form useable by the electric utility industry. Contributions to the publication were made by representatives from many of the electric utilities that pioneered availability engineering practices. The two-volume set, *Guidelines For Availability Engineers As Applied To New Plant Design* and *Guidelines For Availability Engineers As Applied To Operating Plants*, is intended to provide guidance to the use of the analytical and administrative tools employed in supporting economic power plant availability in such areas as:

- Worth of Availability
- Maintainability
- Spare Parts
- Operability
- Root Cause Analysis
- Decision Analysis
- Uncertainty
- Human Factors

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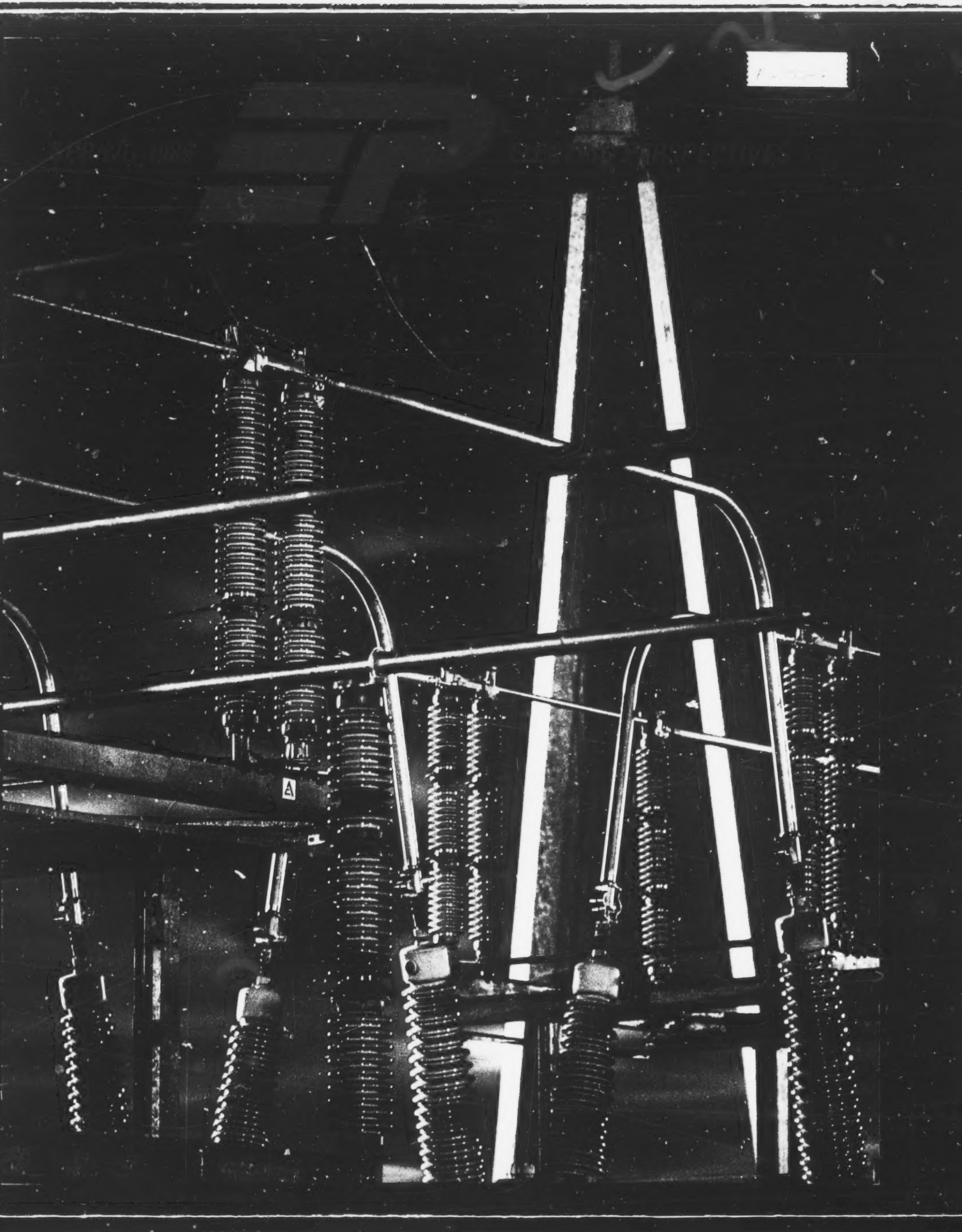
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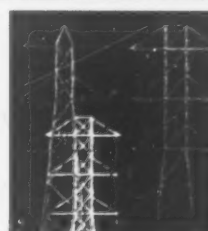
ELECTRIC PERSPECTIVES

SPRING 1985

MANDATORY WHEELING: IS COMPETITION IN THE NATION'S BEST INTEREST?

By Douglas C. Bauer and Bruce S. Edelman

Electric utilities are very rapidly being drawn into the deregulation debate.

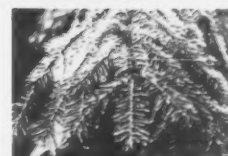


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MANDATORY WHEELING: IS COMPETITION IN THE NATION'S BEST INTEREST?

By Douglas C. Bauer and
Bruce S. Edelston

Douglas Bauer is Senior Vice President for Economics and Finance and Bruce Edelston is Manager of Economic Programs for Edison Electric Institute.

Electric utilities, like other regulated industries, are very rapidly being drawn into the deregulation debate. The debate is not about routes and fares (as in the airline industry) or about prices of new energy sources (as in the natural gas industry). Rather, it is about access to and use of the utility's transmission network. The closest parallel is probably found in telephone deregulation, where local access networks have been opened up for use by competing long distance carriers. In the electric utility industry, however, the proposal is reversed—the long distance system, here the transmission system, is to be opened up for use by competing electricity generators and possibly end users as well.

Proposals have been advanced to require electric utilities to wheel power not only for other utilities (which is already a fairly common practice) but also for non-utility sellers and purchasers of power.¹ Some proposals would require a Federal Energy Regulatory Commission order to require wheeling ser-

vices; others would make transmission service available to all those desiring service, at standard rates and without discrimination.

An unusual coalition of interests has developed in support of mandatory transmission access and use. This coalition consists of state regulators (who want to take further advantage of short-term differences in costs between utilities), many federal regulators (who believe mandatory access will lead to improved "market" forces), wholesale and large retail customers (who want to "shop" for lowest cost power sources), and cogenerators and small power producers (who wish to sell their power to the utility with the highest "avoided cost" prices). Reflecting these interests, Representative Matsui (D-CA) introduced legislation (H.R. 5608) in 1984 to amend the Federal Power Act with regard to its wheeling provisions.

The Historical Debate

In 1935, Congress first sought to address the highly complex issue of competition versus coor-

dination in bulk power supply. Congress carefully weighed the position of two groups: those who argued in favor of imposing "common carrier" obligations on transmission owners as a means of expanding competitive opportunities; versus, those who expressed concerns that such competition would be "destructive" and result in higher costs and less reliable service. The final decision, reflected in the legislative history of Part II of the Federal Power Act, was to restrict the newly created Federal Power Commission's control over the ordering of system interconnections and wheeling. This decision to deny the FPC freedom to mandate third-party transmission services demonstrated a significant reliance on voluntary coordination among the individual utilities to achieve desired levels of economy and efficiency.

Since passage of the Federal Power Act of 1935, there have been numerous efforts to provide the FPC, now the Federal Energy Regulatory Commission (FERC), with additional manda-



The utility would be required to provide transmission services to virtually any party requesting them.

**... numerous court decisions have affected utility
wheeling obligations.**

tory wheeling authority. Most recently, in 1978, Congress was presented with a broad range of proposals to open up transmission systems. After considerable debate, Congress made only limited changes in the scope of the Commission's wheeling authority. These changes, reflected in the Public Utilities Regulatory Policies Act of 1978, grant FERC authority to compel wheeling after making several findings, the most significant of which requires that the wheeling order "would reasonably preserve existing competitive relationships" among the utilities affected by the order. In other words, Congress reaffirmed its opposition to introducing potentially destructive competition to the utility markets.

Concurrent with the on-going Congressional debate, numerous court decisions have affected utility wheeling obligations. The most important of these was the *Otter Tail Power Company v. United States*, 1973) in which the courts held that mandatory wheeling may be required as a remedy to demonstrated anti-trust violations. However, the courts have consistently held that there is no comprehensive utility wheeling obligation under current statutes. The real extent of utility obligations to wheel pursuant to the antitrust laws is currently not entirely clear and will probably be decided on a case-by-case basis.

The final area of law that relates to utility wheeling obligations is the requirements of the antitrust provisions of the

Atomic Energy Act of 1954. A number of utilities have been subjected to varying degrees of wheeling obligations under Nuclear Regulatory Commission (NRC) licensing conditions since the early 1970s. These conditions frequently extend to all of a utility's transmission facilities and not just to those lines directly related to the plant being licensed. Thus, the NRC's authority with respect to mandatory wheeling is fairly significant.

Current Arguments

The recent growing interest in wheeling can be traced to a number of factors:

- In an era of rising electricity prices, larger utility customers perceive an opportunity to reduce short-term energy costs through "off system" purchases. In this way, power is purchased from remote suppliers at a reduced rate while the customer enjoys the benefit of retaining the local utility's service obligations to ensure that power requirements are met.
- The possibility of greater intersystem power transfers offers a welcomed alternative to the escalating costs, regulatory uncertainties, and severe financial risks involved in constructing new generating facilities. It is believed that enhancement of the currently extensive transfers would enable utilities to defer new capacity additions.
- Long lead times for new plant construction, together with declining load growth, have contri-

buted to substantial levels of "surplus" generating capacity with low marginal costs in some regions. Many argue that this temporary surplus could be used to a greater extent to "displace" higher cost generation elsewhere.

■ Current trends in deregulation have led to analogies between contract carriage in the gas pipeline industry and electric power transmission, with a focus on the potential for industrial "competition." In fact, FERC already has initiated an



UNIPHOTO

experiment to examine opportunities for competition in selected segments of the bulk power market.

■ Finally, the Public Utility Regulatory Policies Act of 1978 offers substantial economic incentives for the development of non-utility-owned cogeneration and designated small power "qualifying facilities." As a result, qualifying facilities desire to sell their power to that utility within economic transmission distance that offers the highest "avoided cost" purchase price

(i.e., the cost otherwise incurred by the utility to supply an equivalent amount of power). The common denominator uniting these interests is the desire to foster competition in bulk power (and sometimes retail) markets, resulting, proponents of mandatory wheeling say, in a lower cost, more efficient electric power supply system.

The proponents fall into two main factions. One faction advocates placing electric utilities under a sort of common carrier obligation. The utility would be

compelled to provide transmission services under uniform and nondiscriminatory terms and conditions to virtually any party requesting them. The utility's options to refuse such requests—whether or not it views them as contrary to the economic interests of its own customers—or to impose advance reservation and notification requirements on the availability of transmission service would be restricted. As a consequence of these imposed conditions, many utilities would be forced to expand transmission capacity to

Wheeling was not a major consideration in the design and planning of today's high-voltage transmission network.



New proposals for mandatory transmission access could lead to rate increases . . .

accommodate *all* requests for service.

A second faction wishes to expand FERC's existing authority to order a utility to provide third-party transmission services. This proposal differs from the "common carrier" obligation in that a FERC order, perhaps with some conditions, would still be necessary prior to mandating a specific wheeling service.

The Investor-Owned Industry's Response

Recognizing the growing interest in mandatory transmission access, the Edison Electric Institute formed a Transmission Access Task Force in 1983 to assess emerging proposals and to provide a forum for exchange of views and information among companies. An industry position, which calls for retention of the current system of voluntary power exchange and wheeling, evolved from the work of the Task Force. That position is based on four major premises:

1. The present basically voluntary system for transmission access has worked well, providing reliability and economy to retail and wholesale customers.

2. New proposals for mandatory transmission access or utilization could impinge upon the safety and reliability of the electric power supply system.

3. New proposals for mandatory transmission access could lead to rate increases for residential and smaller commercial and industrial customers unable to "shop" for lower cost sources of power.

4. New proposals for mandatory transmission access are contrary to the utility's fundamental obligation to serve its customers and will make efficient utility system planning and resource development difficult, if not impossible.

In addition, an aggrieved utility has the right now to seek a mandatory wheeling order from FERC, under suitable economic and reliability conditions.

The Present Voluntary System

An examination of the limited data available concerning wheeling services suggests that investor-owned utilities routinely provide a broad range and increasing level of services on a voluntary basis. Over 118 billion kWh of energy was wheeled by investor-owned utilities in 1981, and amounted to approximately 7.2 percent of the total energy delivered to ultimate customers. This is a sizable figure in light of the fact that wheeled energy accounted for a

mere 4.3 percent of the total energy delivered to ultimate customers only a decade ago. In other words, the amount of energy wheeled increased by nearly 141 percent in that ten-year interval while ultimate sales only increased by 42 percent.

Moreover, additional wheeling routinely occurs within formal power pools and among the member companies of holding company systems. For a variety of reasons, these transactions generally are not reported in industry wheeling statistics. Neither is the substantial amount of energy wheeled between non-contiguous systems in two-party purchase and sale ("displacement") transactions. Clearly, the present voluntary system for transmission access and utilization has worked exceedingly well in terms of both the magnitude and diversity of services offered. (See Tables 1 and 2 and Figures 1 and 2.)

Potential Impacts on Supply Reliability

Transmission systems are complex electrical networks connecting generating sources and load centers. The flow of electricity from generation to load is determined by the electrical characteristics of the network, and it cannot be controlled or directed from point to point over specific contractual paths. With few exceptions (such as the Pacific Northwest Intertie), wheeling was not a major consideration in the design and planning of today's high voltage transmission network, and current transmission systems are designed to

Table 1

Transmission Delivered by Investor-Owned Electric Utilities: 1961-1981

(Thousand mWh)

Year	Transmission Delivered
1981	118,641
1976	70,686
1971	49,928
1966	21,736
1961	10,379

link generators and loads under conditions of multi-directional power flow.

To reduce the need for generating reserves and to maintain reliability under emergency conditions, utilities often have interconnected their transmission systems. These "reliability" interconnections also have allowed utilities to exchange economy power when an interconnected utility has had lower cost power available. Many such

economy transfers currently are taking place as a result of the increasing fuel/cost disparity between utility systems. Because of lower-than-anticipated load growth over the past few years, the utility industry has had capacity available to accommodate these interutility and interregional economy transfers—a temporary situation at best. Additional transfers would, in many cases, require a strengthening of the transmission sys-

tem. Efforts in this area, as a rule, have been delayed by local regulatory and licensing problems based on land use, environmental, health, and safety concerns.

Another important feature of transmission systems is their regional diversity, which reflects the substantially different needs and circumstances prevailing among the nation's utilities. Transmission service arrangements must be negotiated individually relative to these circumstances to assure system reliability. Reliable operation requires advance knowledge of how the system will be used, and only minute-by-minute control over a transmission system will ensure that defined limits are not exceeded. For these reasons, "unconstrained" wheeling—in which control over access and use are taken away from the system operator—directly opposes the functions for which these systems were designed.

Furthermore, reliable operation does not hinge solely on individual utilities, but on coordinated and responsible efforts by all parties in an interconnected system. Through careful power scheduling and continuous monitoring by hundreds of control centers within the network, service continuity is maintained. This requires voluntary compliance with established principles of interconnected operation on the part of all utilities. Without this special orchestration of activities, system operation could become chaotic, and the industry's superb record of reliability could be threatened.

Table 2

Summary of the Types and Numbers of Wheeling Service Agreements on File at the Federal Energy Regulatory Commission

Agreement Type	Firm Wheeling	Non-firm Wheeling	Firm & Non-firm Wheeling	Total
Transmission Service	453	177	29	659
Transmission Tariff	7	7	2	16
Power Pool	5	2	8	15
Interconnection Coordination	104	98	22	224
Interconnection Coordination/Transmission	16	4	1	21
Facilities	4	1	—	5
Partial Requirements	28	12	1	41
Partial Requirements/Transmission	43	5	—	48
Full Requirements	11	1	1	13
Full Requirements Transmission	17	—	—	17
Full & Partial Requirements	1	1	—	2
Other	3	1	—	4
Total	692	309	64	1065

Source: Edison Electric Institute

Major utility control center and giant display board for seven-state power system.

Potential for Rate Increases

It has been the consensus of government policy throughout the electric industry's modern history that the lowest cost and most reliable level of service is provided by a single regulated supplier obligated to serve all customers within a "territorial franchise" (or defined market area.) For this reason, the laws of

most states discourage or preclude competition for either wholesale or retail customers. Based on the cyclical pattern of new plants coming into service and the expiration of fuel supply contracts, at times a given utility likely will have higher production costs than neighboring utilities for a while. Without the stability of exclusive service

areas and reasonable protection against "pirating" of existing customers, there would be uncontrolled customer "rate shopping" to take advantage of such short-term rate differentials.

Adverse rate impacts would result if large customers were allowed to shop around and purchase power off-system. In such a situation, the fixed costs of ca-



**... no electric supplier would continue to incur the risk of
building new generating facilities ...**

capacity—planned and installed to serve their loads as well as those of the utility's other customers—would be borne by the utility's remaining customers, generally residential and smaller commercial and industrial users. The resulting higher rates would encourage greater numbers of remaining industrial and commercial customers

to seek lower cost off-system purchases. Fixed costs then would be reallocated to those "captive" customers left on the system who were unable to contract for alternative supplies. These fewer customers would be required to pay inordinately higher rates for service in what could be a continuous upward spiral.

A utility might also be required to maintain sufficient reserve capacity to serve its former customers' future needs should they desire to return to their original supplier. This is a real possibility if the short-term rate advantages which initially prompted the off-system purchase dissolve or if the custom-

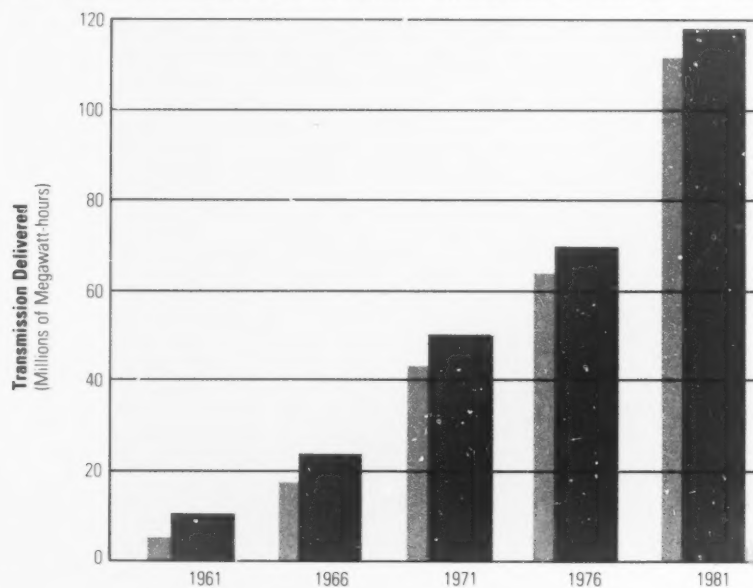
er's off-system supplier has to interrupt service. Additionally, the transmission capacity used by customers purchasing off-system may reduce the utility's own ability to purchase and distribute lower cost power, thereby further increasing rates to its customers.

Without a defined and reasonably predictable geographic market for the output of its power—or a substantially higher rate-of-return on investment—no electric supplier would continue to incur the considerable financial risk of building new generating facilities in an uncertain market characterized by competition among multiple suppliers. The adequacy



American Electric Power Service Corporation

Growth in Wheeling Services by Investor-Owned Electric Utilities, 1961-1981



Source: U.S. Department of Energy

... careful consideration would have to be given to the utility's 'obligation to serve' requirements.

and efficiency of service will be jeopardized if competition creates disincentives to invest in the most economically scaled plant or to engage in voluntary inter-system coordination. Proposals advocating increased competition through mandatory wheeling do not address adequately the direct trade-offs among competition, efficiency, service obligation, and the resulting shifts in the burdens of costs among customers.²

The Fundamental Obligation to Serve

In return for being granted a monopoly franchise territory, a utility assumes an obligation to serve all customers desiring service, at reasonable rates, and without undue discrimination. These responsibilities—together with the capital intensive nature of new power supply facilities and the associated long lead times—dictate the need to impose a corresponding obligation on customers to purchase the output of facilities built on their behalf or to compensate the utility for those costs if they purchase "off system." (Barring this proposition, a reduction in the service level must reasonably be expected.)

Without this purchase "obligation," there would be far greater uncertainty in forecasting and planning adequate generation and transmission capacity—factors which would affect both the quality and costs of electric service. The large capital investments necessary to provide electric service could not be undertaken if, in addition to all

the risks now present, there would be no assurance of a customer base to use electricity from new power facilities.

If both retail and wholesale customers were allowed to leave the system and return at will, then careful consideration would have to be given to amending the utility's "obligation to serve" requirements. Without such consideration, utilities might plan for too much capacity (with the result of increased costs to ratepayers) or insufficient capacity (with deleterious effects on reliability). Cost increases also could occur if the utility is required to provide back-up power or transmission

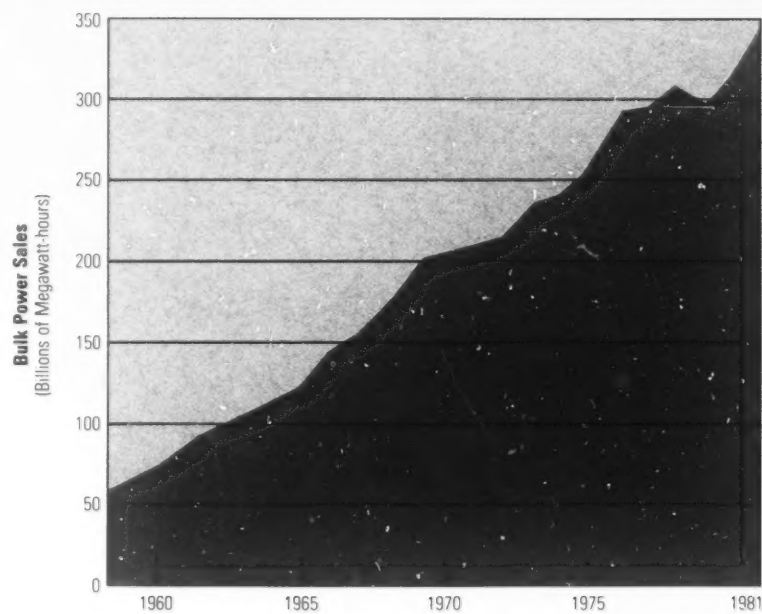
capability to the off-system purchaser, or if the utility has an obligation to serve such customers when their source for off-system purchases is no longer available.

Conclusions

Based on the evidence of extensive and diverse wheeling services already provided voluntarily under terms and conditions approved by regulatory authorities, it appears that the real debate is not over utilities' refusals to provide transmission services but rather the unwillingness of some groups to accept the reasonable limitations that have been placed on transmission access and utilization. These limi-

Figure 2

Growth in Bulk Power Sales by Investor-Owned Electric Utilities, 1960-1981



Source: U.S. Department of Energy

tations protect the legitimate interests of the wheeling utility and its customers. Although the concept of enhanced competition in certain segments of the bulk power market is theoretically attractive, the fundamental economic and engineering attributes of the electric power system, coupled with the entrenched utility service obligations, make it unlikely that greater competition in either retail or full-requirements wholesale markets, as envisioned in re-

cent proposals to broaden transmission accessibility, would benefit the American public.

This is not to suggest that there are no opportunities for increasing economic efficiencies in the electric power supply system. Attention should be focused on some of the positive opportunities afforded by regional differences in power availability and costs. In particular, where transmission bottlenecks prevent the economic transfer of power, it should be

an important public policy objective to foster an environment in which new transmission lines can be constructed. Initiatives such as the Southwest Bulk Power Market Experiment, where FERC is examining the effects of deregulating certain types of bulk power transactions, are important as well.

However, mandatory transmission access, beyond that provided for in current law, will primarily result in a mere shifting of cost burdens between electricity users. To achieve real efficiency gains, we must focus attention on the long-term constraints to increasing the level of economic exchanges and wheeling services. Among the constraints that should be examined are transmission bottlenecks and their relief, the design of rates for transmission service that provide proper incentives, and institutional and regulatory barriers that may inhibit efficient *voluntary* transmission service arrangements between utilities. ■

There would be no assurance of a customer base to use electricity from new power facilities.



Notes

1. Wheeling is defined here as transmission services provided by a utility on a pre-arranged basis to deliver either (a.) power generated outside its own system to the system of another utility or end user or (b.) power generated within its service area by a non-utility to another utility.
2. One of the most hotly contested controversies of the AT&T divestiture has been the need to shift some costs to residential users to prevent large business customers from bypassing the local networks, which would leave residential customers with even higher cost increases.

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FOREST DECLINE IN WESTERN EUROPE

By Robert A. Beck

Robert Beck is
an Environmental
Program
Manager for
Edison Electric
Institute

During the last several years, the debate about acid rain in the United States has spread beyond concern about the health of certain lakes and water systems to include discussions of its possible impact on forests, particularly those located near the tops of some of the highest eastern mountain peaks. For example, scientists have identified a decline in forest productivity around Camel's Hump, Vermont, and Mount Mitchell, North Carolina, and some speculate that acid rain is the culprit.

In Western Europe, where the debate about acid rain first began, researchers have been studying acid rain's impact on forests for years. What have they learned? And what can we learn from them?

In October of 1984, I went to Europe to find out. And despite the popular American conception that all of Europe—the scientists, the politicians, and the populace—agrees that acid rain is the sole cause of the continent's declining forests, I learned that there, like here, that thesis is the subject of heated scientific debate.

The Black Forest

For 15 years, Dr. Hans Zöttl, a professor at the University of Freiburg's Institute of Soil Science and Forest Nutrition, has studied the Black Forest, which lies in the southwestern part of West Germany near the French and Swiss borders. He believes that the tree damage evident there is related more to the presence and absence of particular nutrients in the soil than it is to acid deposition or soil acidity.

The chief symptom of the Black Forest's ill health is the yellowing of needles in silver fir, Norway spruce, and scotch pine trees. Researchers also have observed in the last year that European beech trees are dropping

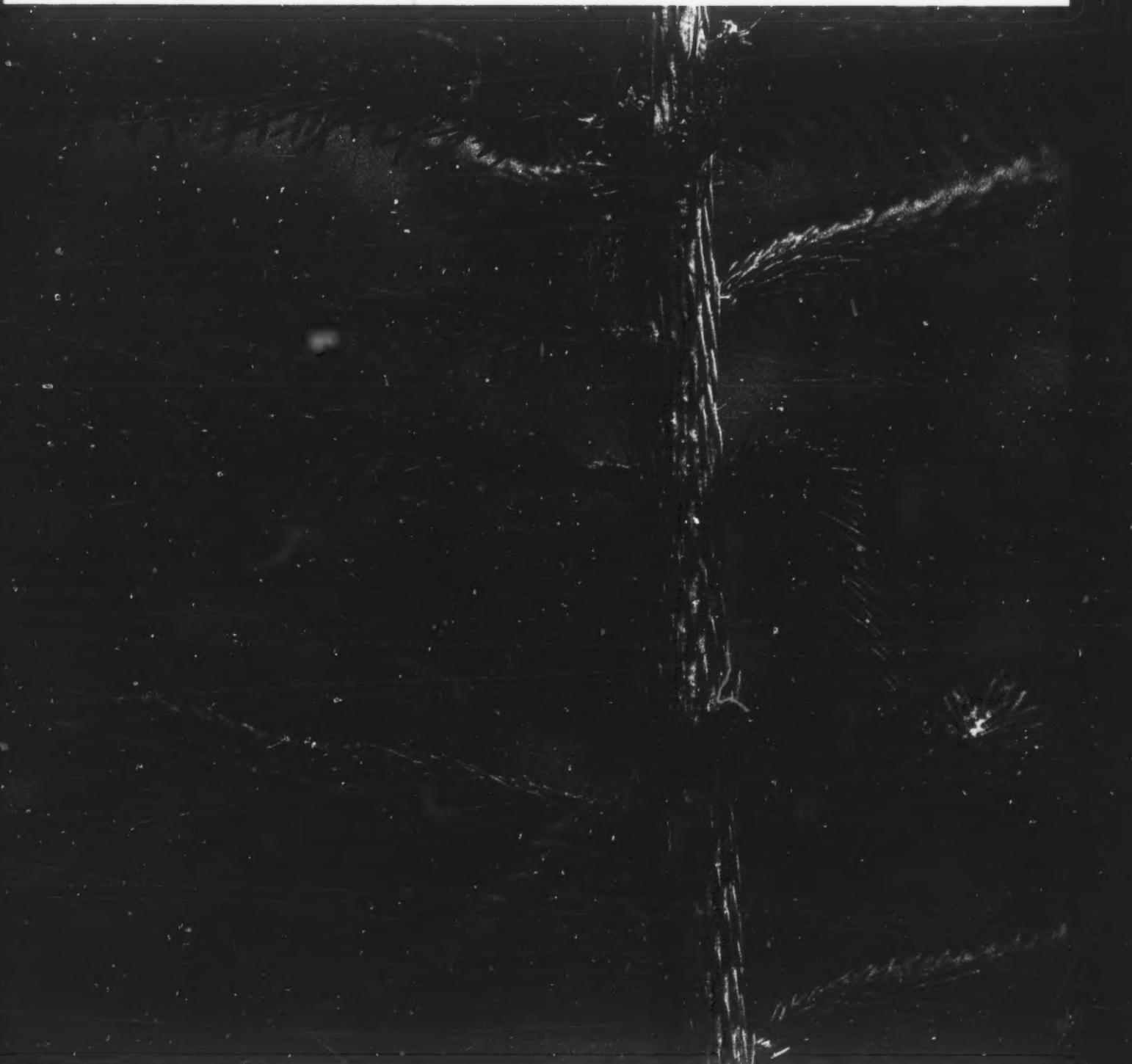
leaves prematurely and that all of these species are thinning at the crown.

Research into the cause of the latter two symptoms is just beginning, but the yellowing is understood relatively well. It is caused primarily by a deficiency of calcium, magnesium, potassium, or zinc in the plant. In some areas of the Black Forest, soils have shown a 70 percent decrease in potassium levels over the last 15 years. Zinc levels have also decreased.

Professor Zöttl is not sure of the cause of the documented nutrient deficiencies, but it does not appear to be related to soil acidity or acid deposition. In fact, data show no increase in

soil acidity over the last 15 years. (The soil pH in the humus layer of the Black Forest is 3.8 to 4.0 and increases with soil depth, and the pH of rainfall averages 4.5 or higher.) Nor is there evidence of either aluminum mobilization in the soil or aluminum toxicity in the fine root hairs of the trees, although aluminum is present in the soil in amounts that would be mobilized if acidity were a problem.

To support his theory that nutrient deficiencies and not soil acidity or acid rain are the cause of the Black Forest's decline, Professor Zöttl has embarked on a large forest fertilization project applying calcium nitrate at a rate of 600 kilograms/hectare/



**Norway Spruce
in the
Black Forest of
West Germany.**

Electric Perspectives/Spring 1985

Specific calcium and magnesium deficient tree growth.

year and magnesium sulfate at a rate of 400 kilograms/hectare/year. Although neither the soil acidity nor the ambient atmospheric pollutant concentration is altered, within four months of application yellow trees become green and healthy-looking again. The fertilizer has been applied manually and by truck both to the soil and directly to the needle surface of 15- to 20-year-old silver fir and Norway spruce trees.

Forests of Bavaria

Research on the forests in Bavaria, which lies to the east of the Black Forest, is being conducted at the University of Munich by Professor Dr. Rehfuess and Professor Dr. Schütt, with the assistance of the Bavarian Department of Forests, Agriculture, and Nutrition, which is directed by Dr. Hubert Roessner. These researchers believe that Bavaria has the healthiest forests in West Germany, and their efforts are directed toward protecting them and preventing any future damage.

Soil acidity does not appear to be a cause of tree damage in Bavaria. Atmospheric data in the state indicate no increase in ambient sulfur dioxide concentrations over the past ten years. However, over that same period, nitrous oxide levels have increased in proportion to increases in vehicular traffic in the state.

Dr. Roessner believes that increased nitrogen oxides and ozone levels are the primary concerns that need to be addressed to protect Bavarian for-

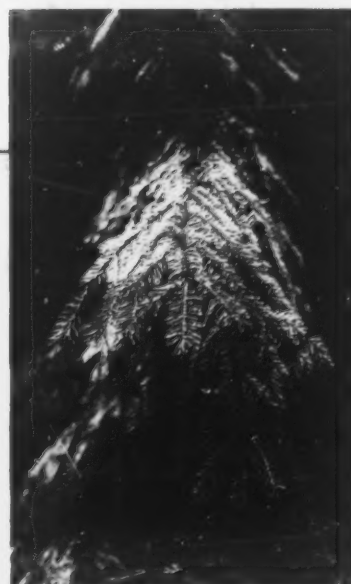


ests. Also, because of a magnesium deficiency, some trees do exhibit yellow needles. To correct the problem, Dr. Roessner is conducting fertilization projects, adding magnesium sulfate at the rate of 400 kilograms/hectare/year. Preliminary results are promising, especially with Norway spruce.

The research of Professor Rehfuess and Professor Schütt confirms that soil acidification and aluminum mobilization are not occurring in Bavaria. In fact, Professor Schütt contends that the soil is not involved at all in the tree damage, and he is investigating the reaction needles and leaves have to the direct exposure of certain gases.

Fichtelberg, The Solling, and The Hartz Mountains

While many qualified scientists conduct research in this central area of West Germany, the prin-



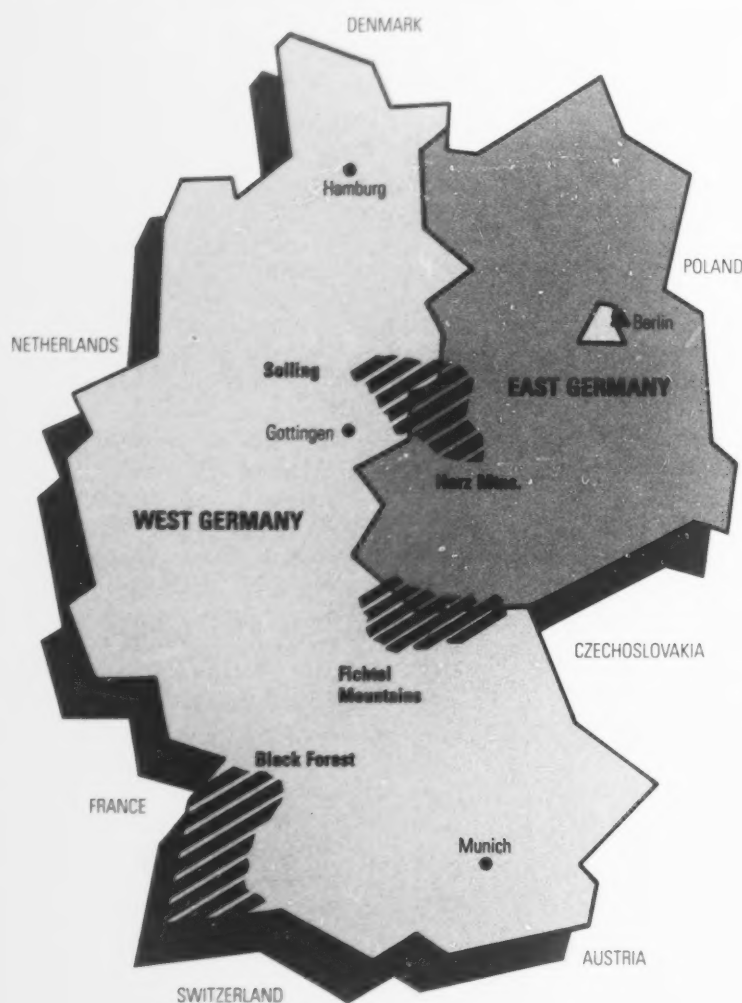
cipal forestry scientist there is Professor Dr. Ulrich. Since 1966, he has been studying the overall ecology of forested ecosystems at the University of Göttingen. His technique includes measuring the total input, metabolism, and output of chemical elements within the forest nutrient cycle.

The Hartz Mountains area is just now beginning to show signs of stress, but Fichtelberg and the Solling Plateau areas are experiencing the most severe tree damage in West Germany. The latter two areas are within 60 kilometers of the East German border, which puts them in close proximity to, and downwind of, the heavily industrialized areas of Dresden and Leipzig, where high sulfur coal (4-5 percent sulfur) is burned with no pollution control equipment. As a result, the Solling and Fichtelberg areas experience an annual sulfate deposition rate of 95 kilograms per hectare—almost three times higher than the deposition rate in the Adirondack Mountains of the United States and twice the amount received by the Black Forest and Hartz Mountains. It

Table 1

Sulfate Deposition in Kilograms/Hectare/year

Black Forest	47kg./H/yr.
Bavaria	45kg./H/yr.
Central W. Ger.	97kg./H/yr.
Upper New York	30-35kg./H/yr.
Tenn./N. Carolina	30-34kg./H/yr.



is a unique situation. (See Table 1.)

Symptoms exhibited by forests of this region are similar to those in other parts of West Germany: needle yellowing and crown thinning, primarily in Norway spruce. Professor Ulrich believes that the ultimate cause of this damage is acid rain. Sulfate deposition, he says, acidifies the soil, mobilizing metals—primarily aluminum—in it. He theorizes that aluminum kills the fine root hairs of the trees, which respond by growing new fine roots. The new roots, in turn, are stressed by the aluminum, and thus, the toxicity cycle is repeated. Professor Ulrich argues that comparison of the fine root-hair mass of healthy trees with that of damaged trees verifies his theory. He also believes that, by analyzing root-hair masses, long-term forest damage can be predicted 20 years into the future.

Although Professor Ulrich believes sulfate acidity is the primary destroyer of fine root-hairs, he also thinks that nitrates damage trees in non-acidic soils. He responds to doubts expressed by people such as Professor Zöttl and Professor Rehfuess by arguing that even in non-acidic soil high nitrate levels can block a plant's uptake of potassium if its fine root hairs are damaged. The source of excess nitrate can be either gaseous respiration in the tree's needles or nitrate deposition in the soil.

Professor Ulrich believes that more acidity enters the Black Forest through the canopy than through the soil, but he holds

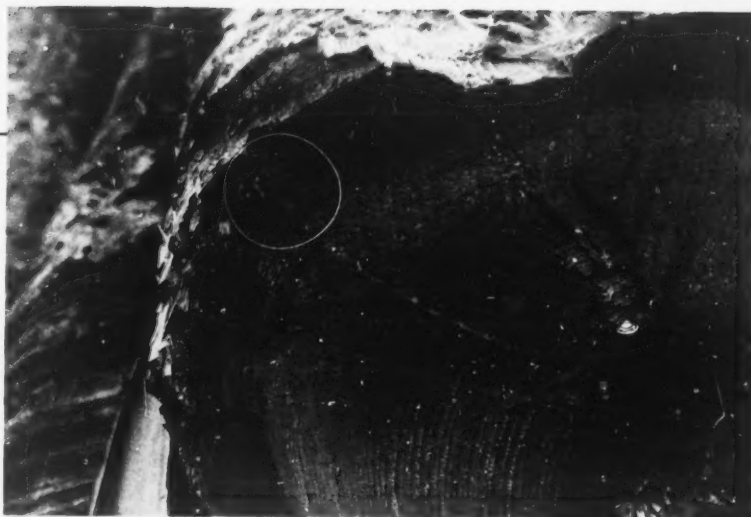
Tree growth reduction shown by diminishing growth rings.

that nutrient deficiency always can be traced to fine root-hair destruction. And even though he concedes that ozone, insects, and harsh climate play some role in tree damage, he maintains that they affect only trees that were predisposed to such damage by fine root-hair destruction.

Neither the scientists in the Black Forest area nor in Bavaria agree with Professor Ulrich's theory. Foresters throughout West Germany design their research efforts to check Ulrich's hypothesis about aluminum mobilization, and only in areas of *highly* acidic soils, such as the Solling Plateau, has his theory been confirmed.

Czechoslovakia

Forestry research in Czechoslovakia has been underway for approximately six years in two regions: the Moravian Plateau in the central part of the country near the city of Brno, and the



area opposite the borders of East Germany and Poland. The principal scientists are Dr. Emil Klimo at the University of Brno and Dr. Jan Materna at the University of Prague. Their approach is much broader in scope than that of most West German researchers. They are investigating the impact of stresses such as climate, clear-cutting, urbanization, air pollution, agriculture, roads, tourism, and biological pests.

Results to date show no significant damage below elevations

of 900 meters (approximately 2952 feet). Above that elevation, however, there is severe damage along the East German border and early signs of damage along the Polish border.

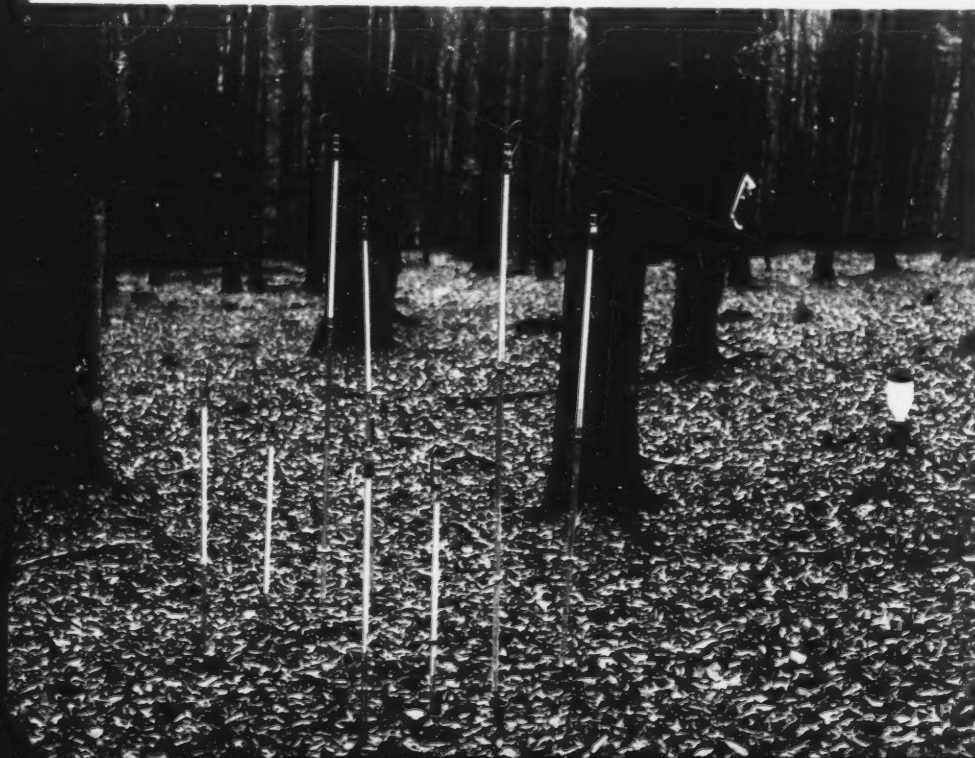
Czech data do not point to any one cause of damage. Both Drs. Klimo and Materna believe it is a combination of factors: air pollution, climate, land use patterns, and insects. They do not think that rainfall pH is a primary factor, since both healthy and damaged trees are present in areas receiving rainfall of the same pH in in soils of about the same level of acidity.

The Czechoslovakians are beginning an extensive reforestation and fertilization program. Larch and red spruce trees are being planted, and dolomitic lime is being applied from airplanes. The lime has raised soil pH by only 0.2. However, this small increase seems to have been sufficient—the larch and spruce are now growing in an area that previously would not support any tree growth.

England, Finland, and Sweden

In England, most of the effort to identify the extent and causes of

Monitoring equipment on Snow Mountain near the East/West German border.



***The Swedes have detected forest damage, but are not
certain of its extent.***

forest damage has centered on chamber fumigation studies where plants are placed in a controlled environment and then treated with different concentrations of pollutants. According to Dr. T. Michael Roberts, who is with the Biological Section of the Central Research Laboratory of the Central Electricity Generating Board, these studies have been concluded for sulfur dioxide and are well underway for ozone. Dr. Roberts indicates that their research to date shows ozone as a major cause of plant damage. Final results will not be available for several months.

The Finns have not detected any significant forest damage in

their country. In fact, Professor Dr. Jaakka Virtanen of the Forest Research Institute of Finland stated that there is not enough damage in Finland to allow detection by infra-red photometry—the taking of infra-red photographs of forests from airplanes. The Swedes have detected forest damage, but are not certain of its extent. Both countries are continuing to monitor the situation.

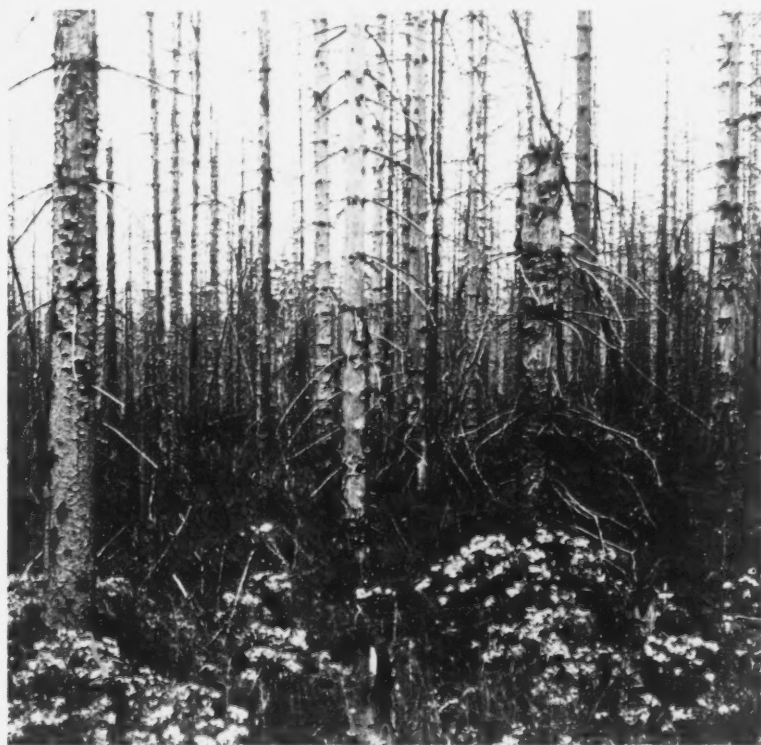
The Lessons

What can be learned from this European forestry research? First, the scientific community there does not agree that acidic deposition is the major cause of forest damage. In fact, the gen-

eral consensus seems to be that the primary cause of the damage is a deficiency of nutrients in the soil, mainly calcium and magnesium. What causes these deficiencies is the subject of great debate, and research is continuing to answer the question more thoroughly. The second lesson is that forest fertilization appears to be a useful tool in recovering damaged trees and protecting healthy ones.

Both points are valuable ones to remember as the acid rain debate continues in this country. We should also remember that, unlike emissions in most Western European countries, sulfur dioxide emissions in this country have decreased by 26 percent over the last 10 years due to the Clean Air Act of 1970, even though domestic coal usage has increased by 53 percent. Perhaps even more importantly, the decline in U.S. emissions will continue. Clearly, a rush to accelerate the emissions reductions would be extremely costly to U.S. electric consumers. But, based on the latest research in this country and in Europe, it is not clear that new reductions would yield any significant environmental benefits. ■

Forest devastation with healthy underbrush evidencing selectivity of damage to mature growth.



1985 PERSPECTIVES ON ELECTRIC POWER— PRIORITY ISSUES

By William McCollam, Jr.

As President of Edison Electric Institute, the association of America's investor-owned electric utilities, William McCollam Jr., addresses the New York Society of Security Analysts each February, reporting on the industry's condition and prospects. This text is based on the remarks he made to the Society this year.

One way to think of our industry is to visualize it as a flotilla of companies of varying sizes and capabilities, working its way through a season of stormy seas. Looking back over the last several years of the storm, we have done fairly well. For some companies, particularly those with nuclear plants under construction, there are still serious shoals ahead. Still, compared with the views generally held of our industry five or six years ago, we can share a sense of accomplishment—and relief.

Of course, there will continue to be tough decisions for utility managements to make as we steer through the difficulties ahead. We see our basic problems today as involving customer acceptance and understanding of the value of the service which they purchase

from the corporations that make up the investor-owned electric utility industry, and the understanding of customers and investors of the competence of the managements responsible for making this service available. As we look around the industry, we see more and more companies attacking these problems aggressively, imaginatively, and—hopefully—with increasing effectiveness.

Viewed on an over-all basis, the electric utility industry continued to show signs of regaining financial health last year. Economic recovery, relatively low inflation, and moderate interest rates contribute to a relatively bright outlook for the industry as a whole.

EEl is expecting a rate of growth for output in the 3 to 3½ percent range for 1985, and in the 2 to 3 percent range for peak load, assuming normal weather. We expect electricity to grow at approximately the rate of GNP.

As we have noted previously, the linkages between electricity and the economy are complex and involve a number of factors. Furthermore, electricity con-

sumption is not merely the passive result of GNP, but also a key contributor to economic growth. Historically, these two growth rates have diverged greatly. In the 1950s, electricity grew 180 percent faster than GNP; in the 1960s, 90 percent faster; and in the tumultuous 1970s, 40 percent faster. Thus, our forecasts today diverge from the trends in the past. However, we should not discount the importance of both a healthy economy for electricity demand and a robust electricity supply system for a healthy economy.

For 1985, seven priority issues—a lucky number, I hope—have been identified as EEl's top legislative concerns: taxes, acid rain, CWIP, nuclear, Staggers Rail Act, hydroelectric relicensing, and transmission access.

By the time an issue reaches the Federal legislative arena, everyone involved seems to be on the defensive. The later in the legislative process one enters the game, the more defensive one will be. Our strategic goal is to involve ourselves, as an industry, as early in the legislative process as possible, and more impor-



By the time an issue reaches the Federal legislative arena, everyone involved seems to be on the defensive.

A major concern of our industry is to preserve capital formation incentives.

tant, to identify and begin responding to issues years before they get to the point of legislative fire fights.

TAXES

Starting with the highly publicized subject of taxes, let me give you briefly the box score for what was achieved in the curtain-raiser year of 1984. EEI and its member companies succeeded in obtaining basically favorable tax treatment in the area of nuclear waste disposal and in certain areas of nuclear decommissioning. Also the present law on tax-deferred dividend reinvestment was successfully preserved, which means that the sunset provision of the law will take effect at the end of this year. On the issue of industrial development bonds, a major means of financing pollution control equipment, we were about 50 percent successful in achieving our objectives.

Now we come to the multibillion-dollar question: where do taxes go from here? The two broad issues in the debate—deficit reduction and tax reform—are obviously going to consume a lot of time and attention of both law-makers and Administration officials over the coming months. At the moment, at least, it appears that deficit reduction has top priority, with prime attention being given to spending cuts. But tax reform cannot be viewed separately. For example, Treasury's comprehensive proposal could very readily be unbundled, and portions of it legislated to reduce deficits *via* the tax increase route.

We are watching developments very closely, and we are geared up to move effectively and quickly to deal with our tax concerns no matter in what context they may appear. A major concern of our industry is to preserve capital formation incentives. The key elements include retention of tax normalization, which has a \$38 billion cumulative effect on our industry; and the retention and expansion of an array of capital formation incentives, which are under close scrutiny by the tax restructurers and revenue enhancers.

With regard to the Treasury tax proposal issued last November, we are concerned about the assault on capital formation incentives, namely the repeal of the investment tax credit and the shift to the real cost recovery system instead of the current accelerated depreciation—measures which have worked well for the nation and helped the cash flow of our industry.

An additional capital formation objective is the retention and expansion of the use of industrial development bonds, a tax-exempt form of financing which would be extremely beneficial if acid rain legislation does, indeed, come to pass, with costly requirements for control equipment.

ACID RAIN

Acid rain is, of course, a priority issue, along with reauthorization of the Clean Air Act. The principal reason the Act was not reauthorized last year was lack of agreement on the controver-

sial issue of acid rain control. As a measure of the significance of the subject, the Environmental Protection Agency (EPA) has pointed out that between 1970 and 1981, electric utilities invested \$11 billion in air pollution control equipment and incurred \$42 billion in costs to comply with the Clean Air Act. EPA estimated an additional \$26 billion investment and \$95 billion in accumulated annual costs in the 1981-1990 decade. Proposed acid rain control bills would raise the cost by another \$100 billion, conservatively estimated.

We anticipate efforts to push



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for legislative enactment of acid rain controls. However, rapidly developing scientific knowledge is discrediting many hypotheses regarding causes, effects, and proposed solutions; benefits are speculative and elusive, but costs are real and predictable; and the more politicians and consumers learn about the substantial electricity rate increases which would result, the greater their resistance will become.

Having successfully withstood acid rain legislation last year, our industry will continue to concentrate on vigorous opposition to any proposals that go beyond intensification of research and

mitigation of acidified waters. Although the Congressional committees with jurisdiction have placed reauthorization of the Clean Air Act somewhat lower on their agendas this year, we will be prepared for any eventuality involving acid rain.

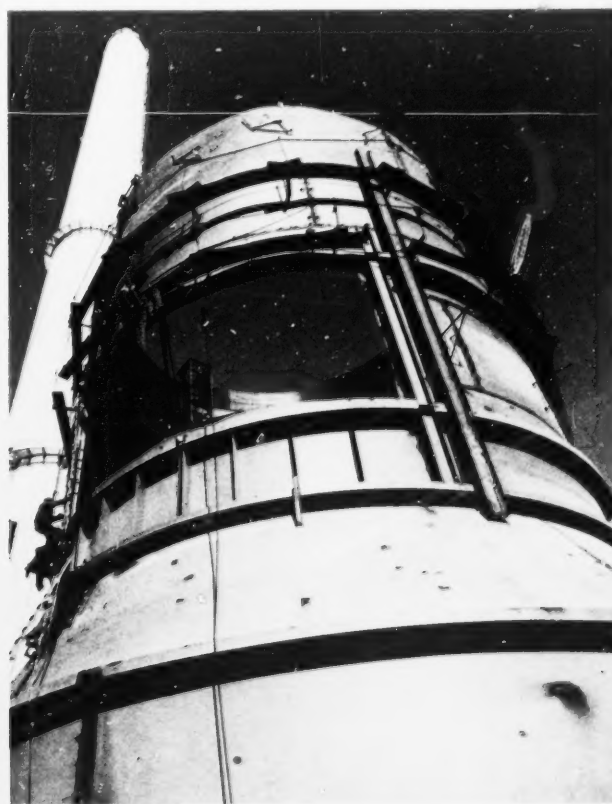
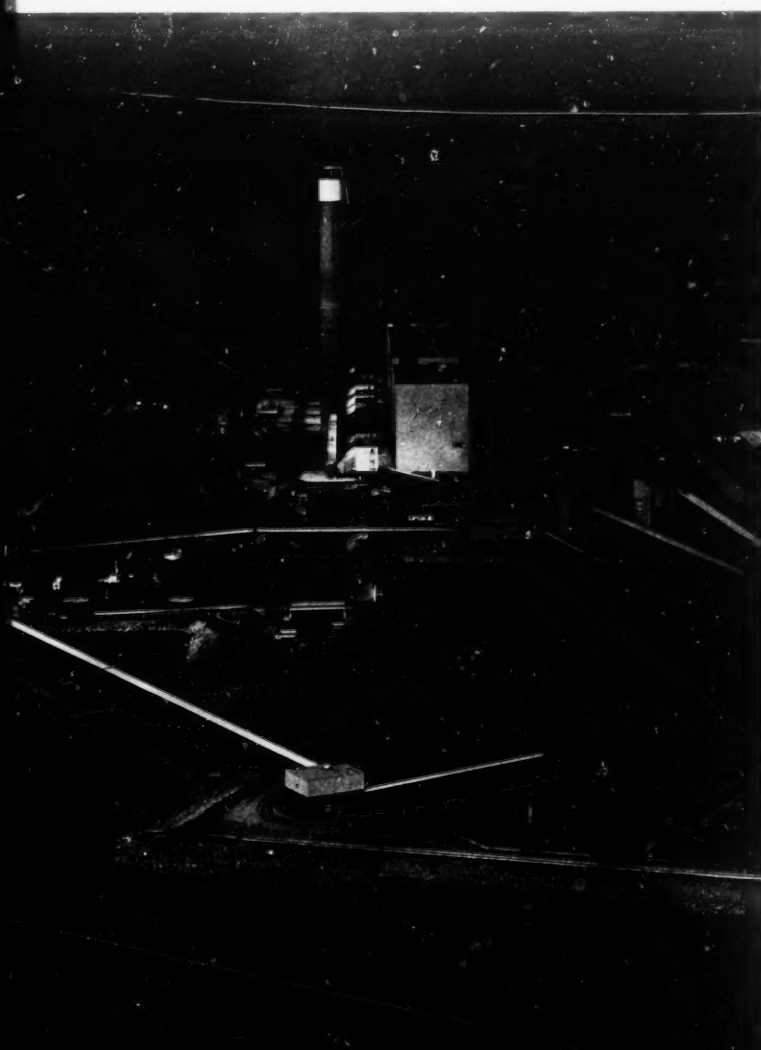
CWIP

In another area, our industry's success was also marked by what did *not* happen. As you undoubtedly know, the Federal Energy Regulatory Commission (FERC) issued a rule in May 1983 permitting 50 percent of construction work in progress (CWIP) in a utility's rate base.

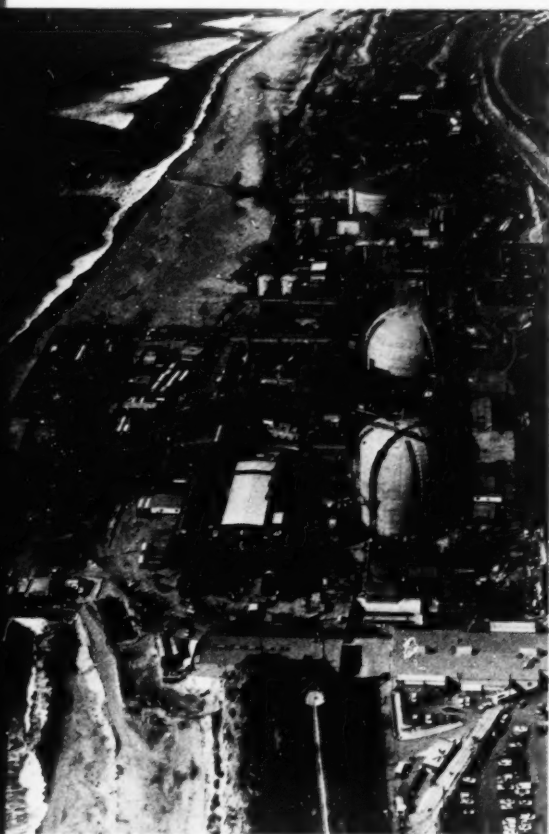
CWIP in rate base allows a utility to recover part of the interest charges on the principal invested in a facility while it is being built. CWIP in rate base makes good economic sense, prevents rate shock, and results in lower construction costs for the electric utility consumer.

Last year in Congress, CWIP became an issue which engaged EEI and its member companies in legislative maneuverings which almost defy description. But we were successful in blocking passage of anti-CWIP measures, thereby saving consumers some tens of millions of dollars and enabling utilities to have

Between 1970 and 1981, electric utilities invested \$11 billion for power plant pollution control equipment. Right: scrubber installation at coal-fired facility.



Nuclear reactors in commercial operation contributed 13 percent of America's electric power last year.



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lower capital costs and greater financial flexibility. Additionally, the fact that the anti-CWIP legislation did not pass signalled to public utility commissions that inclusion of CWIP in the rate base is sound policy. Already the battle on anti-CWIP legislation has begun in the 99th Congress as Representatives Stark (D-CA) and Gedjenson (D-CT) sent a "Dear Colleague" letter announcing their intent to introduce such legislation and inviting other members to be co-sponsors. EEI responded in a letter to all members of the House of Representatives that

anti/CWIP legislation is anti-consumer and should not be supported. It will be an uphill battle to stop it, but we have already begun the fight.

NUCLEAR ISSUES

A priority concern of EEI continues to be what might be generically called nuclear issues. Electricity generated from the atom contributed slightly over 13 percent of the nation's power supply last year, and, ten years hence, we project that figure to exceed 20 percent, with nuclear being surpassed only by coal as a fuel for our nation's essential electricity supply.

Nuclear reactors in commercial operation now total 80—four more than a year ago. Five additional reactors have full power operating licenses and are near commercial operation (not including the two Three Mile Island units). Five units have received licenses to load fuel and/or conduct low power testing.

In the population of plants

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which are not yet operational, there are today 31 units that have construction permits and for which their owners list definite schedules for completion. This year, as many as eight of these scheduled units could be ready for operating licenses.

The increases in electricity consumption over the past year, and, indeed, in the past month, emphasize the absolute necessity of having nuclear as a substantial part of a sound mix of fuel sources for making electricity. We need strong third-party support to change the general, and





seriously mistaken, view that electricity supplies will remain ample for the foreseeable future.

Last June, the EEI Board of Directors established an EEI Task Force on Nuclear Power composed of industry leaders under the chairmanship of T. Justin Moore, Chairman of the Board of Virginia Power. The Task Force was asked to recommend actions that industry and government should take concerning the long-term future of nuclear power. The resulting draft report was approved by the Board at its meeting last month.

The Task Force makes well over a dozen recommendations under the broad heading of reform in the industry and in government regulation of nuclear

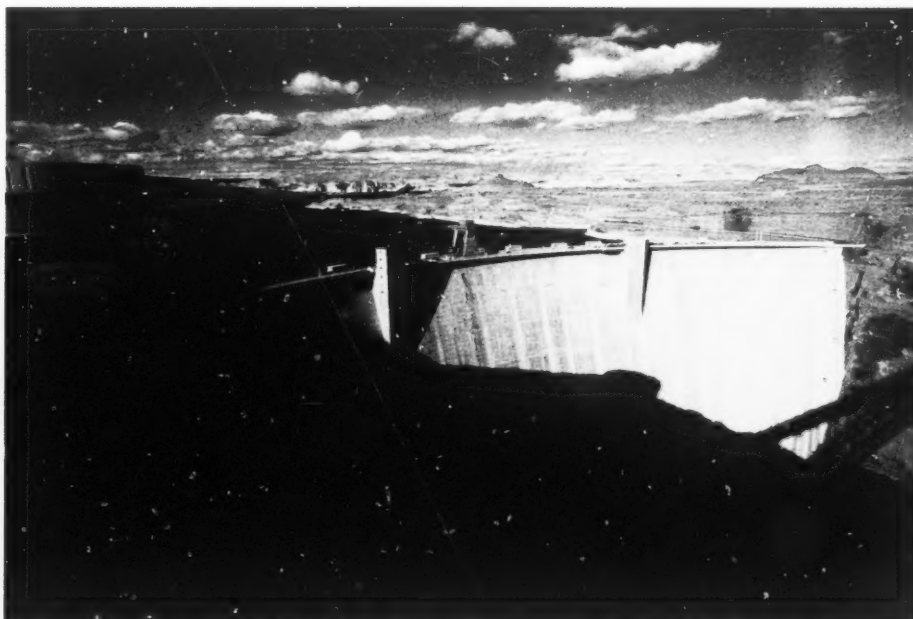
power. If the recommendations are followed, the result would be to sharply reduce the time and cost required to construct a new nuclear unit and to lessen the risk of unexpected cost increases beyond the control of the utility. (See *Regulatory Review*, this issue, for more information on the Task Force's recommendations.)

RAIL DEREGULATION

Another consumer pocketbook issue is the cost of transporting coal under the current provisions of the Staggers Rail Act, as they are being interpreted by the Interstate Commerce Commission. With an annual coal transportation bill now running at about \$5.5 billion, electric utilities are deeply concerned about the "captive shipper" position in which they find themselves.

Some progress was made during 1984 toward amending the Staggers Act—a particularly significant step being the organization, with EEI assistance, of Consumers United for Rail Equity, a broad coalition. As a result of diligent educational efforts, it appears that many Senators and Representatives have received our message. As recent news reports bear out, the railroad lobby is one of the toughest to beat on the Hill. Nevertheless, we feel we have a good shot at a successful legislative effort in the 99th Congress, with the introduction last month by Senator Ford (D-KY) and Representative Rahall (D-WV) of identical bills in the Senate and the House (S.201 and H.R.540), which are practically the same as those introduced in the last Congress.

Electric utilities, which spend about \$5.5 billion annually for coal transport by rail, are deeply concerned about their "captive shipper" position.



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Licenses for 177 hydro projects are up for renewal—and possible challenge—through 1993.

HYDRO RELICENSING

On another energy resource front, we laid the groundwork during 1984 for legislative action to protect the interests of millions of electricity consumers. Seventy-six investor-owned electric utility companies hold licenses for 366 hydroelectric projects in 32 states. Millions of customers in 41 states benefit from these fuel-free sources of electricity. Of these projects, 177 will be up for relicensing through 1993. The issue is whether or not the original licensees will be permitted to renew their licenses. Without going into the intricacies of the regulatory process, it has become apparent that legislation is needed to make clear, once and for all, that states and municipalities do not have a preference for existing projects when licenses come up for renewal.

Over the past 80 years, hydroelectric power plants, developed, operated, and maintained

by investor-owned electric companies and paid for by electricity consumers in their electric bills, have saved customers billions of dollars annually in avoided fuel costs. If these utilities were to lose their licenses for these projects, their customers face the prospect of higher electric bills, because the alternative sources of electricity supply are more expensive.

We endorsed legislation in Congress last year which would amend the Federal Power Act so that existing license holders—whether or not they are private companies, municipalities, or other entities—would be entitled to a new license unless it could be shown that projects would not be operated in the public interest. As an evident matter of equity, Congress should assure the millions who pay for and benefit from effective operation of hydro facilities that their benefits will not be transferred to the relatively



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few customers of state and municipal power systems.

The bill I mentioned was reintroduced as H.R.44 last month, with broad and growing support. A companion Senate bill (S.426) went in last week. One reason for moving rapidly in this direction is to attempt to make it more difficult for those in the House or Senate who might try to combine this bill with other bills dealing with issues such as wheeling.

TRANSMISSION ACCESS

This brings us to the question of transmission access—the seventh on our top-priority list. As a result of a National Governors Association policy adopted in 1983 which endorsed regional electricity planning and regulation, legislation was introduced in the House to embody these concepts as well as to provide greater access to transmission systems. Large power customers seek wheeling services and

greater competition in bulk power markets as a means of reducing the price they pay for electricity.

This interest in promoting competition has been translated into proposals to impose some form of “common carrier” obligation on electric utilities, either by expanding FERC authority to order a utility to provide wheeling services or by requiring utilities to provide such services to virtually any party upon request, under uniform rates and conditions.

House members gave little serious consideration to such bills introduced last year, at least partly because we made a strong case that the public interest was better served under current law, and that the safety and reliability of the system would suffer under mandatory access to transmission lines. But we fully expect that the issue will be back in the 99th Congress, because interest in transmission access is increasing rapidly among industrial and other customers. (*See “Mandatory Wheeling,” this issue, for more information on this subject.*)

As you can tell from this brief overview of presently perceived priority concerns, we are trying to be as well prepared as possible to deal with those issues which appear to have the greatest significance for our members and their customers. But if there is one thing certain about Washington, it is the lack of certainty. So we will maintain ourselves in an alert condition, ready to move as necessary no matter what develops. ■

The transmission access issue will be back in the 99th Congress.

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UNDERSTANDING AND MANAGING CUSTOMER ATTITUDES

By Gene Pokorny

Gene Pokorny is President of Cambridge Reports, Inc.

Virtually all executives in the investor-owned electric utility industry agree that the industry's ultimate success depends in large part on improving customers' attitudes toward electricity and the companies that produce it. In fact, the industry probably has conducted as much research into customer attitudes in the last decade as it did during the first three-quarters of this century. Cambridge Reports, Inc., alone has conducted well over 500 surveys for the electric utility industry in the last 10 years. We've interviewed 200-250 thousand electric utility customers and asked them 20-25 million questions.

From that experience and all that data, a general framework of customers' attitudes emerges that members of the industry need to recognize if they are to understand and manage customer attitudes successfully. Once this framework is understood, electric utilities also can identify practices and behaviors that must be changed if utilities are to prosper.

Framework for Understanding
Designing a customer research

study forces an electric utility to identify up front what its overall objective is. (To use our research terms, we ask, "What is the dependent variable that you are trying to understand and explain?")

For a communications or public affairs study, the bottom-line objective is almost always customer favorability toward the electric utility industry. Most electric utility executives believe that higher overall favorables will make life easier for the electric utility. There will be less discontent and anger and greater satisfaction among customers. As a result, the electric utility will get along better with public officials and regulators, which, in turn, will help overall company profitability.

For a marketing study, the bottom line can vary depending upon exactly what the particular electric utility is trying to achieve in its market. Some utilities are trying to sell more electricity, and some are not. In either case, the utility is trying to influence, manage, or affect consumer demand for the product. Thus, the bottom line in a marketing study involves con-

vincing customers that they can control and affect their individual need or demand for electricity, and, importantly, its cost to them. If customers believe in this personal control, the electric utility can influence customers' use of electricity to suit its marketing or corporate objectives more effectively.

If these are the objectives (or dependent variables) in most electric utility studies, what satisfies them? What creates favorable customer attitudes, and what gives customers a sense that they control their personal demand for electricity and its cost to them?

In most electric utility customer research studies, the dependent variables are explained by customer information, beliefs, and attitudes in two core areas. First, there is a set of information, beliefs, and attitudes about *the product*—its cost, its value, customers' ability to control their use of the product, etc. Second, there is a set of information, beliefs, and attitudes about *the service*—its quantity, its quality, how the utility treats its customers in all the ways it interfaces with them. In this sense,

CUSTOMER ATTITUDES MATRIX



<i>A utility must have the corporate mentality of a good consumer products marketing firm...</i>

service implies more than reliability; it encompasses all the interrelationships a utility has with its customers.

In addition to these two core sets of attitudes, there sometimes is a subordinate third set. This is the information, beliefs, and attitudes customers have about the provider itself—that is, views about the utility as an institution, its management competence and performance. This third set of attitudes often merges with one of the basic two sets depending on how customers feel about their rates. In times of rate unrest or concern, attitudes toward the provider correlate highly with attitudes toward the product. In times of greater rate satisfaction, the correlation is with attitudes toward the service.

Electric utilities are in a unique situation because customers perceive them as both *product* and *service* institutions. Of course, because the product is physically intangible, customers often use service and their relationships with the company as surrogates for the product. Nonetheless, utilities have the advantage of constantly interacting with customers in both product and service dimensions.

A simple four-cell matrix captures this situation and suggests the opportunities of being both a product and a service institution in the minds of your customers. The matrix describes the possible range of customer attitudes at any given moment in a utility's corporate life. Where customer attitudes fall within this matrix generally explains

the dependent variables utilities usually care about.

Obviously, an electric utility should strive to be in the + product and + service cell, or to be as high on each dimension as possible. How high a utility is on each will directly affect the dependent variables in the communications and public affairs area (favorabilities) and in the marketing area (customers' sense of control over their usage of electricity and its cost).

Our experience at Cambridge Reports suggests that, short of being ranked favorably in both areas, a ranking of + product – service is preferable. That is, product perceptions—particularly perceptions about rates and their fairness—are *primes until pares* between the two core areas of attitudes. Of course, if rates cannot be lowered or made dramatically more “fair” in customers' perception, then the service area rises in importance as a means to influence customer attitudes.

Influencing and Managing Attitudes

An electric utility should not be perceived solely as a product institution or as a service institution. Ideally, it should be superior—and rated highly by its customers—in both dimensions. To achieve this end, what customer attitudes in both areas are desirable and how does a utility achieve them?

In the product area, utilities must create levels of information, evaluations, and understandings that lead customers to value the product (as to both the

lifestyle it makes possible and its relative cost) and that give them a sense of personal control over their electricity use and, thus, its cost.

Specifically, research suggests that utilities should show customers that the product is necessary and important to their personal lifestyles and to society overall. Obviously, given the important role rates play in affecting customer attitudes, utilities should lower rates or, at least, keep them as low as possible and make customers aware that this is a goal. When rates must go up, companies must do everything possible to put these rates in better perspective for customers by improving information and perceptions about the value of the product to them as individuals.

At any given level of actual rates, those customers who value the product more highly also feel their rates are more reasonable. If they feel their rates are more reasonable, their overall attitude toward the electric utility is almost always more favorable. This is not to say that there aren't some customers who either feel rates are excessive but who still find the product of high value or feel the rates are fair but the product is of limited value. However, the predominant pattern indicates a high positive correlation between customer feelings about product value and about product price—an observation that will shock no one in the consumer products business.

Finally in the product area, a utility must do whatever it can to alter customers' perceptions

<i>A successful electric utility no longer can be a task-oriented engineering firm . . .</i>

about the control or choice they have over their personal use of the product and the costs they pay for it. In the broadest sense, a company must do everything possible to eliminate customers' feelings of "helplessness" when they confront their need for the product as a necessity over which they feel they can exercise very little choice or control. At any given level of actual rates, those customers with stronger feelings of choice or control over their use of electricity and its cost to them feel better about the product itself, perceive rates as more reasonable, and reveal a more positive overall attitude toward the electric utility.

In the service or relationships area, utilities should create levels of information, evaluations, and understandings that lead to attitudes about service that are as positive as possible. *Service* in this context means more than the technical service of providing a reliable supply of electricity. It encompasses all interactions or relationships a company has with customers through employees. Technical quality of work is not the same as human quality of service, and, in the service arena, customer perceptions of how they are treated are almost always more important than the technical realities. In a sense, customer satisfaction in the service area equals customers' perceptions of how they were treated *minus* their expectations of how they were going to be treated. If the quality of service always exceeds what customers have come to expect, they will be largely satisfied.

Specifically, research suggests that all the things a utility says and does prove whether or not the organization is committed to consumer service and caring. If this is a genuine commitment, customers will perceive it correctly over time. A utility must help customers with their bills by providing cost-control options, alternative rates, and conservation improvements. A utility must show customers that it respects and cares about them by responding to all customer inquiries quickly and courteously, and all utility employees should perform their jobs competently and with the customers' best interests in mind at all times.

When offering customers cost-control options, the issue of outperforming expectations can be very critical. No company should overpromise customers; this will only return to haunt the company. Customers should hear that the utility will be "doing better," not necessarily "doing great." It should also be emphasized that both the electric utility and consumers gain from conservation and demand-shifting practices.

Changing Industry Attitudes

If customer attitudes in the product and service areas are determined by all the things a utility says and does, then it follows that the management of customer attitudes is part of the job description of each and every electric utility employee. This axiom may seem trite, but its significance should not be overlooked. The best marketing or public relations people in the

industry cannot change or repair customers' attitudes, if all the rest of the company's employees are damaging them in every way, every day. Every employee has a potential impact on customer attitudes, whether the employee is the voice on the phone who talks with customers or the president who "speaks" to customers through his or her actions and statements.

Marketing and public relations cannot work miracles, particularly if customers perceive a clear discrepancy between what a company says and what it does. If an electric utility honestly wants optimal customer attitudes, then it must engender a total corporate culture from the very top to the very bottom that is consumer-driven. A utility must have the corporate mentality of a good consumer products marketing firm—it must be a superior product and service marketing organization, not just a production organization. A successful electric utility no longer can be a task-oriented engineering firm providing a monopolized product to customers on a take-it-or-leave-it basis.

To influence and manage customer attitudes more effectively a utility must change too and become a true consumer marketing organization with a corporate goal of total customer satisfaction. If the customer's satisfaction is placed first in the corporate culture and customer satisfaction is produced, the profitable generation and marketing of electricity surely will follow. ■

FINANCIAL REVIEW

EARNINGS PER SHARE DECLINE 3.0 PERCENT; CONSTRUCTION WORK IN PROGRESS UP ONLY 3.1 PERCENT

The investor-owned electric utility industry experienced a 3.0 percent decline in earnings per share in the third quarter of 1984 compared to the third quarter of 1983. The decline reflects the stronger-than-usual increase for the third quarter of 1983, a quarter marked by abnormally warm summer temperatures and the effects of a strong economic recovery. Earnings per share for the twelve months ending September 30, 1984, were up 9.3 percent to \$3.16 from \$2.89 for the preceding annual period.

The slow growth in kilowatt hour sales during the third quarter is reflected in a relatively low rate of increase in electric operating revenues during the quarter. Sales to ultimate customers increased only 2.0 percent from the third quarter of 1983 to the third quarter of 1984 due in part to a 4.4 percent decline in the weather-sensitive residential sales over that period. As a result, electric operating revenues increased only 7.6 percent during the third quarter of 1984 compared to one year earlier—the lowest increase in five quarters.

The operating ratio (electric operating expenses to electric operating revenues) declined

slightly to 79.2 percent during the three months ending September 30, 1984, from 79.3 percent during the third quarter of 1983. The same ratio declined slightly from 81.3 percent during the twelve months ending September 30, 1983, to 80.9 percent during the twelve months ending September 30, 1984. The slow rates of increase in fuel expenses are primarily responsible for the relative stability of the operating ratio.

Interest Coverage Increased

Pre-tax interest coverage including allowance for funds used during construction (AFUDC) increased to 3.12 times interest charges during the year ending September 30, 1984, from 2.94 times one year earlier. Contributing to the improvement was a 16.1 percent increase in income (including AFUDC) before interest and taxes compared to a 9.2 percent increase in interest charges. However, pre-tax interest coverage declined to 3.57 times during the third quarter of 1984 from 3.76 times in the third quarter of 1983. The decline does not indicate deterioration in the industry's financial performance; it mainly reflects the unusually strong third quarter of 1983.

Despite the decline in earnings per share during the third quarter of 1984, earnings quality improved. AFUDC as a percentage of net income available

for common declined slightly to 41.6 from 42.0 one year earlier. For the twelve months ending September 30, 1984, AFUDC to net income available for common showed a greater decline, falling from 56.5 percent to 50.5 percent. Total AFUDC increased only 6.3 percent and 3.2 percent during the twelve- and three-month periods, respectively.

ROE Down Slightly

Lower earning levels during the third quarter of 1984 were apparent in the industry's return on average common equity (ROE). For the year ended September 30, 1984, the ROE was 15.0 percent compared to 15.3 percent for the year ending June 30, 1984.

Declining construction expenditures due to the completion, slowdown, or cancellation of major construction projects continued to affect the industry's balance sheet. Construction work in progress increased only 3.1 percent to \$100.3 billion as of September 30, 1984, compared to the 18.4 percent increase during the twelve months ending December 31, 1982. Also during this period, deferred debits increased 101.8 percent, from \$8.6 billion on September 30, 1983, to \$17.5 billion as of September 30, 1984. Of this increase, \$6.25 billion is the result of the cancellation of two major construc-

R E V I E W S

Table 1

Investor-Owned Electric Utility Industry Statement of Income

For periods ending September 30, 1984 and 1983 (Unaudited) (Millions of Dollars)

	Quarter Ending September 30,			Year Ending September 30,		
	1984	1983	% Change	1984	1983	% Change
Total Electric Operating Revenues	\$33,798	\$31,400	7.6	\$117,196	\$105,722	10.9
Electric Operating Expenses						
Fuel	\$10,668	\$10,475	1.8	\$37,267	\$35,361	5.4
Other Operation & Maintenance	7,483	6,437	16.2	28,882	25,912	11.5
Depreciation & Amortization	2,336	2,065	13.1	8,964	8,003	12.0
Taxes Other Than Income Taxes	2,285	2,104	8.6	8,426	7,623	10.5
Income Taxes (Federal & Other)	2,077	1,791	16.0	4,343	3,138	38.4
Provision for Deferred Income Taxes	1,203	1,323	(9.1)	4,836	3,773	28.6
Investment Tax Credit Adjustment, Net	721	701	2.9	2,042	2,164	(5.6)
Total Electric Operating Expenses	\$26,773	\$24,896	7.5	\$94,760	\$85,974	10.2
Electric Operating Income	\$7,025	\$6,504	8.0	\$22,436	\$19,748	13.6
Other Utility Operating Income	124	77	61.0	1,485	1,040	42.8
Total Utility Operating Income	\$7,149	\$6,581	8.6	\$23,921	\$20,788	15.1
Other Income	495	452	9.5	2,007	1,455	37.9
Allowance for Other Funds Used						
During Construction	1,314	1,297	1.3	5,182	4,842	7.0
Total Income Before Interest Charges	\$8,958	\$8,330	7.5	\$31,110	\$27,085	14.9
Interest Charges						
Interest on Long Term Debt	\$3,518	\$3,154	11.5	\$13,395	\$12,213	9.7
Other Interest Expenses & Charges	347	286	21.3	1,201	1,149	4.5
Allowance for Borrowed Funds Used						
During Construction	(851)	(801)	6.2	(3,261)	(3,104)	5.1
Net Interest Expenses & Charges	\$3,014	\$2,639	14.2	\$11,335	\$10,258	10.5
Net Income Before Extraordinary Items	\$5,944	\$5,691	4.4	\$19,775	\$16,827	17.5
Extraordinary Items	0	2	(100.0)	(166)	(32)	418.8
Net Income	\$5,944	\$5,693	4.4	\$19,609	\$16,795	16.8
Preferred Dividends Declared	734	701	4.7	2,902	2,737	6.0
Net Income Available for Common	\$5,210	\$4,992	4.4	\$16,707	\$14,058	18.8
Common Dividends Declared	2,746	2,602	5.5	10,842	9,913	9.4
Retained Earnings	\$2,464	\$2,390	3.1	\$5,865	\$4,145	41.5
Avg. Shares Outstanding	5,407	5,019	7.7	\$5,287	\$4,869	8.6
Earnings Per Share*	\$0.96	\$0.99	(3.0)	\$3.16	\$2.89	9.3
Common Dividends Per Share*	\$0.51	\$0.52	(1.9)	\$2.05	\$2.04	0.5

*Based on average shares outstanding as reported to EEI by survey respondents and adjusted for stock splits.

NOTE: Revenues are adjusted for intra-industry sales for resale of electricity.

R E V I E W S

Table 2
Investor-Owned Electric Utility Industry Balance Sheet
As of September 30, 1984 and 1983 (Unaudited) (Millions of Dollars)

Assets	1984	1983	% Change
Utility Plant*			
Utility Plant (Including Nuclear Fuel)	\$294,953	\$269,096	9.6
Less Accumulated Depreciation	83,677	75,697	10.5
Less Property-Related Accumulated Deferred Income Taxes	4,396	3,922	12.1
Total	\$206,880	\$189,477	9.2
Construction Work in Progress	100,265	97,239	3.1
Net Utility Plant	\$307,145	\$286,716	7.1
Investments	7,209	6,325	14.0
Current Assets	36,835	32,871	12.1
Deferred Debits	17,453	8,649	101.8
Total Assets	\$368,642	\$334,561	10.2
Capitalization & Liabilities			
Capitalization			
Common Stock	\$77,872	\$72,124	8.0
Retained Earnings	40,566	34,635	17.1
Preferred Stock	31,910	30,963	3.1
Long-Term Debt	139,023	129,252	7.6
Total Capitalization	\$289,371	\$266,974	8.4
Current Liabilities			
Short-Term Debt	\$5,162	\$5,110	1.0
Long-Term Debt Due Currently	4,200	3,734	12.5
Other Current Liabilities	27,723	24,313	14.0
Total Current Liabilities	\$37,085	\$33,157	11.8
Deferred Credits			
Accumulated Deferred Income Taxes	\$21,178	\$17,417	21.6
Accumulated Deferred Investment Tax Credits	14,120	12,079	16.9
Other Deferred Credits	6,888	4,934	39.6
Total Deferred Credits	\$43,186	\$34,430	22.5
Total Capitalization & Liabilities	\$368,642	\$334,561	10.2

* Includes other utility plant of combination gas and electric companies.

REGULATORY REVIEW		
tion projects and the restatement of these costs from construction work in progress to a deferred account. The growth in accumulated retained earnings continued to outperform all other components of the industry's capital structure, strengthening the industry's financial flexibility. Accumulated retained earnings increased 17.1 percent from September 30, 1983, to September 30, 1984, and contributed to the increase of the industry's equity ratio to 40.9 percent as of September 30, 1984, up from 40.5 percent three months earlier and from 39.5 percent a year earlier. The industry's long-term debt ratio declined to 48.0 percent as of September 30, 1984, from 48.7 percent one year earlier. Tables 1 and 2 are based on unaudited reports submitted by a sample of electric and combination companies. The sample accounts for 95 percent of the industry's revenue from sales to ultimate customers and 94 percent of the industry's total assets. The data was expanded to represent the entire investor-owned electric utility industry. ■ Contributed by the Finance Department of Edison Electric Institute.	TASK FORCE ADVOCATES NUCLEAR REFORM A new nuclear unit is now an option no American utility will choose, according to a new report of the Edison Electric Institute (EEI). The report claims the costs and risks of nuclear development have become unacceptably high for U.S. utilities and that major reforms are necessary if nuclear power is to remain a viable energy option. The report, prepared by the Task Force on Nuclear Power established by EEI's Board of Directors last June, was approved by the Board earlier this year. Chaired by T. Justin Moore, Chairman of Virginia Power, the task force was composed of industry executives. Its charge was to recommend actions that industry and government should take concerning the long-term future of nuclear power. In assessing the need for nuclear power, the task force concludes that America will need between 100 and 200 million kilowatts of additional generating capacity before the year 2000. To meet this need, the report says, the United States should begin now to take steps that will make nuclear power an option utilities can consider. The electric utility industry is not attached to nuclear power for its own sake, the task force points out. Rather a utility's interest and obligation is to provide reliable electric service at the lowest cost. Reform is	advocated because it is believed that nuclear power, if sensibly managed and governed, can again play an important role in achieving that objective. The task force makes a number of recommendations designed to guide this nation toward a reliable and sensible energy policy. The first is the early appointment of a National Commission on Electricity to make independent judgments on the future growth of electricity demand and the means for meeting that demand. The task force further suggests that the Commission evaluate how utilities could again venture into major plant construction economically and that it recommend which generating options should be available. If the Commission reaches the conclusion that nuclear power should remain as one of several future generating options, then the Commission should examine changes needed by both industry and government to allow utilities again to consider ordering new nuclear units. The task force also recommends that electric utilities address major reforms. In addition to maintaining excellence in the operation of existing nuclear plants and continuing the record of safe nuclear operations, electric utilities should prepare for greater use of joint ventures and separate nuclear

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companies as a means of spreading risk and achieving better matches between capacity additions and load growth. They also should develop nuclear units only through contracts providing for sharing of the risk of cost increases with nuclear suppliers. Those suppliers, in turn, should adopt and present for licensing standard designs for new nuclear power units.

The task force also recommends reforms in federal law and regulation, so that:

- standard nuclear plant designs are approved, and plants built according to those designs are licensed promptly;
- nuclear plant sites are considered and approved in advance of an application to construct a plant, allowing for public participation before ground is even broken;
- new regulations governing backfits would be adopted only if they would clearly produce substantial benefits to public safety;
- a single license would permit construction and operations once the Nuclear Regulatory Commission (NRC) had determined that the plant as built conformed to the approved design and met quality standards; and

■ NRC hearings would more closely resemble legislative hearings and be limited to previously unresolved issues concerned with nuclear safety.

The task force also recommends several structural changes within NRC to improve the organization's effectiveness and efficiency; calls for resolute action to implement existing Federal legislation to provide for the safe, permanent disposal of radioactive nuclear waste; and recommends an extension of the Price-Anderson Act with the continuation of a cap on utilities' total liability.

The task force believes, "... the conditions that now make new nuclear orders unattractive to utilities are not inherent in the technology but result from the ways in which nuclear power has been regulated by our government and managed by our industry.

"It would be wrong to suggest that the utilities or the architect, engineers, and nuclear suppliers have been blameless or that all the problems of nuclear power arise from deficiencies of law and regulation and the activities of nuclear opponents.

"We recognize that our assessment will be challenged as self-interest," the task force said. "We offer it not with the expectation that it will be

accepted but rather with the hope that it will prompt a process of evaluation that will be generally regarded as realistic and unbiased."

Even if recent construction periods for generating units are reduced, the development of economical new generating capacity will still require a number of years. It is therefore timely to begin taking the steps that will make it possible for America's electric utilities to serve future electricity demand fully and at the lowest possible cost.

"To do so, we must have the wisdom to look ahead, to understand what our situation requires and to act realistically on that understanding," the report concludes. ■

Contributed by The Information and Publishing Services Department of Edison Electric Institute.

FOR PERSPECTIVE

TURNING THE CORNER

The utility stock index has climbed dramatically over the last couple of years, giving financial analysts, regulators, and environmental groups the opportunity to argue how "profitable" it has been to own utility stocks. Still, compared to other, less risky investments, utility stocks continue to lag behind—as, in fact, they have since 1965 (see Figure 1).

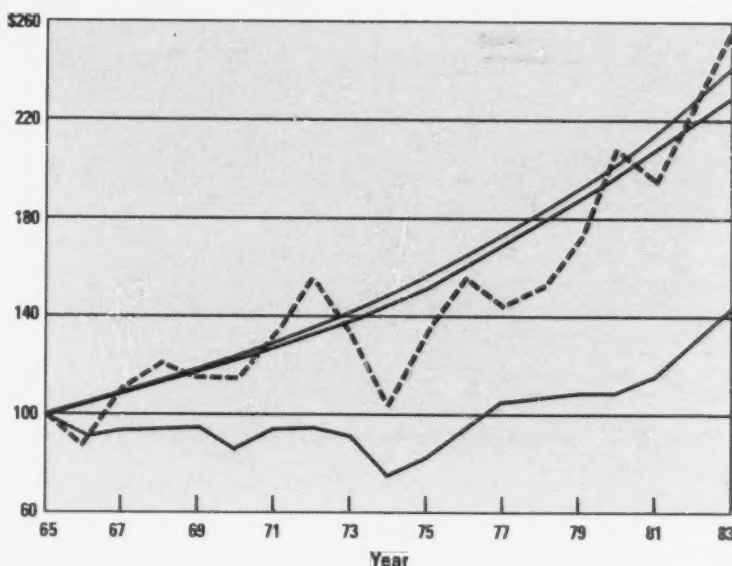
The past ten years in particular have been a period of financial distress for many companies within the electric utility industry, as unpredictable changes have been all too common. However, these changes have prompted utilities to explore new paths to financial health in areas such as diversification, load management, and energy-resource strategies.

In addition, over the last couple of years many electric utilities have turned the corner in terms of construction expenditures. In fact, preliminary estimates indicate that last year the industry as a whole may have experienced the first decline in annual construction expenditures since 1975.

Thus, despite the reports of plant cancellations and financial troubles that seemed to fill the newspapers, in 1983 and 1984 many companies registered sound improvements in financial flexibility and health. Moreover, both of the trends that are largely responsible for this recent financial renaissance

Figure 1

Investment Alternatives If \$100 Were Invested



- 20-year Treasury bonds: annual interest reinvested
- Savings & Loan: passbook savings account compounded annually
- Moody's 24 Utility Stocks: dividends reinvested in same portfolio
- Standard & Poors' industrial 500 (Compustat): dividends reinvested in same portfolio

—increasing flexibility and decreasing construction expenditures—are expected to continue as the industry works to climb out of the financial quagmire of the last decade.

In short, the industry's performance over the last couple of years has brightened the near-term outlook for utility

stockholders, especially when compared to the distressing history of the last decade or two. Although electric utility stocks still have a lot of catching up to do, utilities will continue to develop new financial and technological strategies to improve their ability to serve their customers economically and to preserve the interests of their investors. ■

Contributed by Marshall Baker, Operations Analyst, Finance Division, Edison Electric Institute.

R E V I E W S

STATISTICAL REVIEW

Table 1
Sales Turnover—Time Basis

Industry	Revenue Equals Assets*
Investor-Owned Electric Utilities	Once every 2 years, 8.9 months
Mining	Once every 2 years, 2.4 months
Railroads	Once every 1 year, 4.8 months
Tobacco Manufactures	Once every 1 year, 3.5 months
Machinery, Except Electrical	Once every 1 year, 0.1 months
Chemicals and Allied Products	Once every 11.1 months
Iron and Steel	Once every 11.6 months
Investor-Owned Gas Utilities and Pipeline Industry	Once every 8.5 months
Food and Kindred Products	Once every 6.2 months
Motor Vehicles and Equipment	Once every 6.9 months
All Manufacturing Corporations	Once every 9.4 months

*Average net assets for fiscal 1983

NOTE

The Communications industry ranked high in earlier listings of turnover ratios, but is not shown here since the recent breakup of AT&T has rendered the ratio meaningless.

SOURCES

EEl, Statistical Yearbook; Moody's, Public Utility Manual; AGA, Gas Facts; Federal Trade Commission, Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations; Association of American Railroads, Yearbook of Railroad Facts.

SALES TURNOVER

The electric utility industry differs from most other industries in that electricity is a product tangible only in the service it performs. Because the production and distribution of electric power by the company and its use by the customer occur almost simultaneously, electricity must be "made to order" every time a customer employs any of its thousands of applications. Electric utility companies cannot generate electricity to store for future demand; at any

instant, they must have facilities to meet the maximum demand for electricity. In addition, electric utility companies must maintain and operate transmission and distribution facilities.

Consequently, electric service requires a tremendous capital investment in plant and equipment. Revenue from almost three years of electricity sales is required to match the electric utility industry's assets. In a manufacturing industry, however, the sales revenues of one year are usually greater than the amount of capital investment. For instance, the motor vehicles and equipment industry turns over its capital

almost twice a year (see Table 1). In other words, each year the motor vehicle industry generates \$1.00 in revenue for each \$0.58 of assets, whereas the investor-owned electric utility industry needs \$2.74 of assets to generate \$1.00 of revenue (see Table 2). ■

Contributed by the Statistics Department of Edison Electric Institute.

R E V I E W S

Table 2
Sales Turnover—Dollar Basis

Industry	Assets Per \$ of Annual Revenue	
All Manufacturing (a)	\$0.78	
<i>Nondurable Manufacturing Industries</i>	\$0.76	
Food and Kindred Products	\$0.51	
Tobacco Manufactures	1.29	
Textile Mill Products	0.54	
Paper and Allied Products	0.83	
Printing and Publishing	0.69	
Chemicals and Allied Products	0.93	
Industrial Chemicals & Synthetics	\$0.98	
Drugs	1.13	
Petroleum and Coal Products	0.94	
Rubber and Misc. Plastic Products	0.61	
Other Nondurable Mfg. Industries	0.49	
<i>Durable Manufacturing Industries</i>	0.81	
Stone Clay and Glass Products	0.84	
Primary Metals Industry	0.99	
Iron and Steel	0.97	
Nonferrous Metals	1.02	
Fabricated Metal Products	0.68	
Machinery, Except Electrical	1.01	
Electrical & Electronic Equipment	0.80	
Transportation Equipment	0.69	
Motor Vehicles and Equipment	0.58	
Aircraft, Guided Missiles & Parts	0.84	
Instruments & Related Products	0.90	
Other Durable Mfg. Industries	0.61	
Mining (a)	2.20	
All Wholesale Trade (a)	0.31	
Wholesale Trade, Durable Goods	0.43	
Wholesale Trade, Non-durable Goods	0.27	
All Retail Trade (a)	0.42	
General Merchandise Stores	0.59	
Retail Food Stores	0.24	
All Other Retail Trade	0.49	
Investor-Owned Electric Utilities (b)	2.74	
Railroads (b)	1.40	
Investor-Owned Gas Utilities And Pipeline Industry (b)	0.71	

NOTES

(a) Based on second quarter (1984) information from FTC's QFR.

(b) Annual data compiled from listed sources for fiscal year 1983.

SOURCES

EI, Statistical Yearbook; Moody's, Public Utility Manual; AGA, Gas Facts; Federal Trade Commission, Quarterly Financial Report for Manufacturing, Mining, and Trading Corporations; Association of American Railroads, Yearbook of Railroad Facts.

BOOK REVIEW

THE MARKETING IMAGINATION

Theodore Levitt
The Free Press, 1963
New York, 193 pps.

By K. Michael McGrath

"The purpose of a business is to create and keep a customer." Upon this challenging statement, Theodore Levitt builds the case that the marketing discipline is evolving rapidly to meet the needs and opportunities provided by the world economy. Sure to be of interest to marketing executives, Levitt's book explores the role of marketing in both the industrial and service sectors of the economy, and makes a compelling case for the importance of "the marketing imagination" in business success.

Analyzing the performance of a number of successful and unsuccessful businesses, Levitt identifies a constant of success: "that there can be no effective corporate strategy that is not marketing oriented, that in the end does not follow this unyielding prescript: The purpose of a business is to create and keep a customer. To do that, you have to do those things that will make people want to do business with you."

Levitt goes on to explain how strong industrial businesses make customers want to do business with them. They do so by looking carefully at potential customers and finding what needs they have in common,

and by meeting those needs as productively and imaginatively as possible. The result can be a global corporation, offering products perceived as so desirable and competitively priced that product nationalization becomes unnecessary. The real trick in this process is to identify the customers' needs and find a method to satisfy them. Herein lies the requirement for genius and imagination, by definition a trademark of a global industry. This globalization of industry is already underway, and localized, less imaginative industries lacking great economy of scale will find it unprofitable to compete.

In larger industries providing standardized products, success becomes more complicated. Such industries, by virtue of being efficient, find it difficult to compete on the basis of price, since product price alone does not adequately differentiate one company from another. Accordingly, a successful industry must find a way to differentiate its products. One of the better methods is to position the product as a superior solution to a customer's problem. For example, Levitt points out that customers really don't need computers, instead they need to calculate, track, manipulate, and store information. Much of the well known success of IBM can be attributed to the fact

that IBM has packaged its computers with the customer's needs in mind. IBM products come with appropriately customized software and with training and user support designed to guarantee that the customer's needs are met. As a result of this strategy, IBM is one of the world's foremost computer companies, in spite of the fact that other computer companies offer machines with price performance ratios equal to IBM's.

Although Levitt does not directly address the highly regulated electric utility business, the electric industry does represent a large and efficient industry providing a highly standardized product (or service). One can assume that Levitt would insist that electric companies take great pains to understand the needs of their customers, recognizing that customers do not need electricity per se, but require warmth, cooling, light, mechanical motion, etc. None of these customer needs absolutely require the existence of a profitable investor-owned electric utility industry. He would surely maintain that industry success will involve both packaging electricity in ways that better meet customer needs and differentiating electricity from other energy forms, such as oil, natural gas, or photovoltaics.

Levitt offers a provocative explanation for why the U.S. economy appears to be moving from a manufacturing-oriented

TECHNOLOGY REVIEW

economy towards a service-dominated economy. He points out that on an overall productivity basis, the manufacturing industry far outstrips the service industry. As a result, less per person value is required per unit output in the manufacturing industry. Thus, service industries appear to be growing faster than manufacturing industries, when, in reality, service industries are requiring a larger share of the economy's resources because they are less efficient. Vigorous competition and efficiency also will come to the service industries, and they too will be challenged to meet customer needs in more efficient, imaginative ways. Evidence of such trends in the service industries include companies such as McDonalds, which is combining efficiency with marketing acumen to reach for global domination of the fast food business.

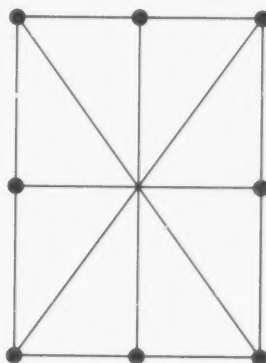
Arguing in an exuberant style, Levitt makes a strong case that imaginative marketing and good management are the most important attributes of successful businesses. Although marketing in the electric utility business is unlike marketing in unregulated businesses, Levitt's approach to the subject is, at the very least, thought provoking. This reviewer highly recommends placing *The Marketing Imagination* on the reading list of electric industry executives. ■

Michael McGrath is a Director of Technical Services for Edison Electric Institute.

UNICOM UPDATE

After Tom Morron, Edison Electric Institute's Vice President of Customer Services and Marketing, suffered a back injury last summer, he soon discovered the frustrating side effects of a four-month prescription for rest and quiet. "As you progress, the novelty of bed rest wears off quickly. You can't be active, but you long to have something to take your mind off your discomfort. The quiet rings in your ears, and you think of all the important work that needs to be done at the office."

What Tom needed was a means of conducting business from his bedside at his own convenience. He needed to be able to communicate with his staff and to review their work when he wanted to and to rest undisturbed when he needed to.



U N I C O M

Aware of Tom's dilemma, EEI's Information and Publishing Services Department provided Tom with a near-term solution to his problem. Norm Rubenstein, Director of the department, recalls, "We immediately saw a way to help Tom with the electronic mail capability of our UNICOM Service, which he already knew how to use since he was an early subscriber."

UNICOM, the Utility News and Industry Communication Service, is a news, information, and communication system that EEI created over a year ago for the electric utility industry. Currently addressing roughly 250 people, UNICOM now links over 85 EEI member companies and affiliated organizations. The system, developed by Information, Inc. for EEI, was designed to keep electric utility professionals in touch with one another and to provide them with the most current news about their industry.

"The solution to Tom's dilemma couldn't have been simpler," explains Rubenstein. "We took some desktop computer equipment out to Tom's house and connected it to the phone next to his bed. When Tom wanted to communicate with his office, he simply composed electronic mail letters to his staff and used the simple command that sends them instantly. His staff, in turn, could draft lengthier documents on a

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word processor, upload that material into their electronic filing cabinet, and whisk it off for Tom to read at his convenience."

The principle involved in linking Tom to EEI also makes it possible for EEI, its member companies, and related organizations such as the Electric Power Research Institute, the Atomic Industrial Forum, the Institute of Nuclear Power Operations, and the National Electric Reliability Council to communicate with each other. Subscribers can enter text of any length—from 2-line messages to 20-page reports—and transmit them instantly to one or more network participants.

UNICOM also offers users access to over 180 information services and files—many of them part of a unique electric utility industry news bureau available nowhere else. By entering a number or combination of numbers, subscribers with no previous computer experience quickly locate the information they need.

Almost any personal computer, dumb terminal, or word processor outfitted with a communication software package and a modem can access UNICOM. The modem translates the signal from the user's equipment through telephone lines to UNICOM's powerful

host computer in Virginia. Through a packet-switching telecommunication network, all calls to the computer from major metropolitan areas are rendered local, keeping costs down. The host computer serves as a post office, storing mail until users collect it. It also stores UNICOM's unique information files and permits subscribers to search some of them by keyword. Guaranteeing a high degree of security, the host computer checks a unique ID and password combination each time a user seeks access to the service.

Since its genesis, UNICOM has been continually refined and expanded, the most recent development being an offshoot known as the UNICOM CEO Service. Designed exclusively for use by EEI member-company chief executives, the service offers files and features not available on the standard UNICOM master menu, including CEO letters and an industry stock feature. It also enables CEOs to communicate with one another as well as with other system subscribers, and it encapsulates the most current news bureau features of the standard UNICOM Service.

CEOs who stopped by to view the new service in action at EEI's January CEO Conference in Scottsdale, Arizona, witnessed two timely applications. Communication Vice President Bill Brier sent his latest press release to EEI

headquarters in Washington electronically—obviating the need to dictate a lengthy release over the phone. And conference planners, anxious to ascertain the schedule of Secretary Donald Hodel, who was scheduled to address the CEO meeting the morning following Reagan's announcement of plans to shift Hodel from Energy to Interior, regularly searched the UPI and AP wires on-line; by keying in Hodel's name, they obtained stories only about him and in the sequence they requested.

EEI's Brier notes, "Most of our service is industry-specific. We took great care to fashion the news bureau component of UNICOM so that it addresses utility industry employees' needs. However, whenever we can create a file that responds to the needs of a segment of our subscriber base, we'll endeavor to do that." ■

(For additional information about UNICOM or the UNICOM CEO Service, contact Norm Rubenstein, Director, Information and Publishing Services, 202/828-7593 or UNICOM ID EE1059.)

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